An Address

ON

ACUTE RHEUMATISM, ITS ALLIES AND ITS COUNTERFEITS.*

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IT is to be hoped that the time is coming when we shall be as successful in stamping out acute rheumatism as we have been in the case of malaria and typhus fever in this country, and as it would seem we are about to be in tuberculosis. It is difficult to estimate the amount of misery that would be prevented could we but limit the spread of acute rheumatism. Under 30 years of age I should estimate that four-fifths of all the cases of valvular disease of the heart are due to acute rheumatism, and I suppose that there is no more pitiable sight in a hospital ward than a patient gradually dying from heart failure resulting from the endocarditis of acute rheumatism.

I would lay especial stress on the importance of recognizing that in children slight pains, commonly described as growing pains, an attack of tonsillitis or erythema may be the only manifestation of the rheumatic diathesis, and yet quite sufficient to set up endocarditis with all its lamentable sequelae.

The whole subject of rheumatic fever has been much clarified since its probable microbic origin has been acknowledged, and there is much evidence in favour of the *Diplococcus rheumaticus* described by Drs. Payne and Poynton as being the specific organism. Just as the discovery of the tubercle bacillus cleared up many doubts and difficulties which formerly existed in tuberculous cases, so the recognition of the rheumatic organism will enable us to form a truer conception of its nature, and we shall be able to exclude many conditions which were in the past embraced under the head of rheumatism, but which we now have every reason to believe are of a widely different pathology. Time was when the joint lesions of acute rheumatism were thought to be characteristic, but we now know that they may be simulated by pyaemic conditions—as in a case to which I shall direct your attention later on—and by gonorrhoeal rheumatism, to say nothing of gouty arthritis. In children, moreover, as I have just mentioned, the disease may run its course with hardly any, if any, joint mischief, the heart bearing almost the whole brunt of the disease. We must, therefore, regard rheumatic fever as a general disease with localization in the heart and joints, and not a local disease of the joints with symptomatic fever.

It is quite unnecessary for me to enter into a description of the symptoms of an attack of acute rheumatism. To all present I am sure that these symptoms are only too familiar, as rheumatic fever is unfortunately very common in our damp climate. I would, however, like to make a few remarks on some of the chief complications of this disease. Among these, affections of the heart take the first place. It is difficult to overestimate the frequency with which the heart is affected in cases of rheumatic fever and the evil effect this has upon the life-history of the individual. Even as far back as the time of Sir Thomas Watson it was recognized that the chance of the heart being involved during an attack of acute rheumatism, which is very great before puberty, diminishes as life advances. He writes:[1]

> I have known only two persons pass through acute rheumatism with an untouched heart prior to the age of puberty, and in these two I am by no means certain that the articular disease was genuine rheumatism.

Life Assurance.

The damage done to the individual is becoming more and more appreciated by assurance companies. For my part, I believe that the companies would save money if they declined to accept any applicants who had suffered from an attack of rheumatic fever. In my small book on *The Medical Examination for Life Assurance*[2] I have laid down the following rules:

> An attack of acute rheumatism, sufficiently severe to keep the patient in bed two or three weeks and to incapacitate him from his occupation for six or seven weeks, would require the addition of an equivalent to seven years at the age of 30, and three years must have elapsed since the attack. If there has been more than one attack, the life would not be assurable until at least ten years after the last attack. An applicant with a rheumatic history had better not be accepted under the age of 25 years.

Increasing experience in life assurance has in no way tended to diminish my fear of acute rheumatism. Indeed, I am inclined to add a rider to the above rules and to suggest that cases with a rheumatic history should only be taken for an early endowment policy.

According to Sir William Church's[3] statistics, 80.55 per cent. of the cases under 10 years of age had signs of old or recent endocarditis. The percentage gradually dropped to 34.64 in those over 40, with an average percentage of 57.50—that is, his figures show conclusively that more than half the cases of acute rheumatism have endocarditis—a truly formidable indictment against the disease, and a warning not to neglect the earliest indications of acute rheumatism.

Endocarditis of rheumatic origin may come on during fetal life, and be the cause of some of the varieties of congenital heart disease. Indeed, a fetal endocardial murmur has been recognized before labour. At the Lumleian Lecture on March 25th, 1909, Dr. Norman Moore exhibited the hearts of a woman and her fetus, both showing signs of endocarditis. The mother had acute rheumatism.

It is more difficult to detect pericarditis than endocarditis, so that one need not be astonished to find that Sir William Church's statistics show that only 14.87 per cent. of men and 9.95 per cent. of women with rheumatic fever suffered from pericarditis. My late colleague, Dr. Sturges, insisted that in many cases we have to deal with a pancarditis—that is, that a myocarditis exists in connexion with the pericarditis and endocarditis, or even independently of either. It is probably to this myocarditis that we owe the sudden deaths from acute dilatation of the heart which occasionally take place during the course of acute rheumatism. The possibility of the myocardium being affected should be borne in mind during convalescence from acute rheumatism, and the patient should be kept in the recumbent position for at least two or three weeks after the temperature has become normal and the pulse quiet. Indeed, I think that to be on the safe side four to six weeks would not be too long. Unfortunately, with the demand on hospital beds, this counsel of perfection can rarely be carried out in hospitals, but more might be done to impress upon private patients the necessity of prolonged rest in the recumbent position after an attack of acute rheumatism. If this could be done much less would be seen of valvular disease of the heart.

While on the subject of pericarditis I would like to draw attention to a physical sign present at a very early stage of the disease, which I do not think has received sufficient attention—I mean cantering action of the heart; and by cantering action I understand the presence of three sounds in the cardiac rhythm. Two of the sounds being, of course, the first and second sound of the heart, and the third being due to the commencing pericardial friction, before it has sufficiently developed to give rise to the to-and-fro friction rub.

Pleurisy.

Pleurisy is another complication which I have seen from time to time during the course of acute rheumatism. The fact that it chiefly affects the left pleural cavity would seem to indicate that it arises in connexion with some cardiac infection, and, indeed, that has been my experience. I have usually seen a pleural effusion in patients who have suffered also from pericarditis. It has been stated that 10 per cent. of all cases of acute rheumatism get pleurisy, but this seems to me too high a percentage. Possibly more cases would be detected if all patients were carefully examined, but the pain attending these examinations in rheumatic subjects is often a bar to the necessary investigation.

Tonsillitis.

I think that it is now generally agreed that pharyngitis is a very common complication of acute rheumatism;

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indeed, it has been stated that sore throat is present in 80 per cent. of all cases of rheumatic fever. Owing, however, to the attention of the patient being concentrated on his arthritic symptoms, he will often omit to mention spontaneously the fact that his throat is sore, and this possibly accounts for the discrepancy in the percentage of cases reported by different authorities. The throat is usually affected a day or two before the onset of the articular pain, but occasionally there is no complaint of throat trouble until after the rheumatic affection has fully declared itself.

It has been suggested that the tonsils are the chief portals for the entrance of the poison of rheumatic fever, and there is much to be said in favour of this view. When sore throat is the chief feature of a rheumatic attack cardiac lesions are seldom seen, though cases do occur in which endocarditis and pericarditis are met with even when articular pains are entirely absent. Such a case I reported at the meeting of the British Medical Association in 1889, in the discussion on "Tonsillitis and its Relations to Rheumatism." The patient was a girl of 8, with a sharp attack of lacunar tonsillitis. As her medical attendant informed me before I saw the child, she seemed much worse than the throat condition would account for. On examining the heart I found pericardial friction and an apical murmur. It may be argued that the cardiac symptoms were not due to the poison of rheumatism, but arose from the absorption of a septic material from the tonsil, and that the symptoms were really of septic origin and not rheumatic.

Until we have some certain method of recognizing the *Diplococcus rheumaticus*, or whatever germ be the cause of rheumatism—and I most emphatically believe that it is a disease of microbic origin—we shall always be confronted with the difficulty of distinguishing between anomalous cases of acute rheumatism and septicaemia. In rheumatic sore throat the margin of the soft palate, the tonsils, and the posterior wall of the pharynx will be found of a deeper red colour than normal and somewhat swollen. In the more severe cases there may be some oedema of the mucous membrane and especially of the uvula.

The symptoms due to this pharyngitis are sometimes so slight that, as I have already stated, the patient will omit to mention them unless questioned on the subject, but in the more severe forms dysphagia, pain extending up to the ears, and difficulty in speaking occur.

As regards the different varieties of tonsillitis, the lacunar is the form which is most commonly associated with rheumatism.

Chorea.

Chorea has long been regarded as a manifestation of the rheumatic state. Indeed, Dr. Bright, of Guy's Hospital, as early as the beginning of the last century, clearly recognized the relationship, but it has required constant iteration to keep this fact before the profession. It has always been a matter of wonder to me how some able physicians could disregard the very strong evidence in favour of the connexion. My late colleague, Dr. Sturges, a man of a singularly well-balanced mind, did not believe in any intimate connexion between the two diseases, though he was candid enough to write as follows: "Cases in which chorea arises in the course of rheumatism are so striking and so similar that notwithstanding the comparative rarity of the conjunction it is difficult to resist the conclusion that the one affection actually gives rise to the other."[4] When this conjunction takes place, in the great majority of instances in my experience the joint trouble has preceded the chorea, which came on either while the rheumatism was abating or during convalescence. If the chorea should make its appearance in the acute stage of the rheumatic affection, the patient is in a lamentable plight, the constant choreic movement aggravating the pain of the original disease.

As regards the way in which chorea is produced by the rheumatic poison, an analogy may be drawn between this disease and diphtheritic paralysis. We have very good ground for believing that the toxins produced by the Klebs-Loeffler bacillus give rise to the paralysis by acting on the peripheral nerves; we may therefore assume that chorea is probably caused by the toxins of the rheumatic bacillus affecting the motor areas in the brain. This is a much more reasonable suggestion than that chorea is brought about by a shower of minute emboli being carried to the motor centres, which was the opinion at one time held.

The Skin Affections of Rheumatism.

Many cases illustrating the connexion between erythema multiforme and rheumatism have been placed on record. The varieties most frequently met with in rheumatic subjects are those known as erythema papulatum and erythema marginatum or circinatum.

The eruption of erythema papulatum consists of spots varying in size from a pin's head to that of a sixpenny piece, of irregularly rounded outline and slightly elevated. The colour is of bluish-pink; a slight haemorrhage may take place into the spots, so that when they fade they leave behind them a faint mark resembling a bruise. The eruption appears in crops.

Erythema marginatum occurs in circles of various size up to the diameter of several inches. The circle is formed by a slightly raised pink ring with a central area of a livid hue.

Erythema nodosum is far less commonly met with in the course of acute rheumatism than the varieties just mentioned. With regard to the relation of erythema nodosum to rheumatism, Stephen Mackenzie came to the following conclusions: "(1) That erythema nodosum is frequently associated with definitely rheumatic symptoms—for example, arthritis, sour sweats, sore throats, etc. (2) That heart disease (endocarditis) may arise during an attack of erythema nodosum, both in cases in which arthritis is present and in cases in which there is no affection of the joints. (3) That these conclusions justify the inference that erythema nodosum is frequently, if not generally, an expression of rheumatism even when no other definitely rheumatic symptoms are present."[5]

Urticaria may also be one of the earliest symptoms of an attack of rheumatic fever. Hence the appearance of any of the eruptions which I have just mentioned, after exposure to cold and damp, with some concomitant feverishness, should suggest the possibility that it is the precursor of an attack of acute rheumatism.

Angio-neurotic oedema is sometimes met with in rheumatic cases. This occurs as puffiness of the face, hand, or other part of the body. Pain and itching are almost absent; at the outset there may be a little pricking when the patches begin to swell. Whether it is more than a mere coincidence in the rheumatic attack has yet to be settled. A scarlatiniform rash has been described; this is probably scarlet fever with joint symptoms.

Desquamation has occasionally been noticed in rheumatic cases. Sudamina and miliaria rubra occur when there is profuse sweating. Herpes labialis and herpes zoster have been described as complications of acute rheumatism.

"Peliosis rheumatica" is the term applied to an eruption of small bright-red spots, the size of a lentil, situated chiefly upon the legs below the knees, which gradually change in colour to brown or yellow. It is accompanied by pain in some of the joints, and valvular disease of the heart has resulted from it. It is a rare disease, and its exact relation to rheumatism is uncertain. Both purpura simplex and purpura haemorrhagica have been met with in rheumatic cases.

Subcutaneous Nodules.

In Hillier's book on *Diseases of Children*, published in 1868, an account is given of a case in which subcutaneous nodules occurred, and various Continental writers have described cases in which nodules have been observed. It is, however, to Dr. Barlow (now Sir Thomas) and Dr. Warner that is due the credit of pointing out their frequency and importance as clinical evidence of the rheumatic diathesis. The paper presented by these authors to the International Medical Congress in 1881 gives an admirable account of the whole subject, and a *précis* of the 27 cases upon which the paper is based. Indeed, I may safely assert that nothing of importance on the subject has been added to their original observations. It was one of the best pieces of clinical work that was presented to the Congress.

These nodules vary in size from that of a mustard seed to that of an almond. They are, as their name implies, strictly subcutaneous, and are not connected with the skin. They are free from redness and pain, and only very slightly tender.

They most commonly occur about the joints, especially the malleoli, the back of the elbows, and the margins of the patellae. They are also met with on the pinna of the ear, the temporal ridge, the superior curved line of the occiput, the spinous processes of the vertebrae, the spine of the scapula, the crista ilii and the extensor tendons of the foot and hand. These nodules are fairly common in children, but rare in adults. As they do not give rise to pain they require to be looked for—or should I not rather say to be felt for?—as they may sometimes be more easily recognized by the touch than by the sight.

They occur discrete or in clusters and in number from one up to fifty or more. Sometimes only a single crop appears; in other cases two or three crops occur. They last from a few days to four or five months. Individual nodules greatly increased in size while under observation, and on the other hand, some subsided and then grew again. They disappear after the rheumatic attack is over. None of the nodules became bony, or infiltrated with urate of soda, or suppurated. Dr. Barlow and Dr. Warner[6] describe the growths as "round or oval semitransparent fibrous bodies, in appearance like boiled sago grains." Microscopically they are found to be composed of "wavy strands of fibrous tissue, with caudate, spindle-shaped, nucleated cells and abundant vessels."

As regards their anatomical site, they have been found attached to tendons, to the deep fasciae, and to the pericranium. They have been found in the pericardium after death. These nodules are without doubt evidences of rheumatism; they are usually associated with the severer forms of this disease, and the more numerous and the larger they are the worse is the prognosis. In all the cases recorded by Dr. Barlow and Dr. Warner some morbid condition of the heart was present, and eight out of the twenty-seven patients died from the result of the heart disease, a clear indication of the grave prognosis afforded by the presence of these nodules. Dr. Cheadle's experience is even more unfavourable than this. He regards the eruption of large nodules as almost equivalent to a sentence of death. "They mean persistent cardiac disease, generally uncontrollable, and marching almost infallibly to a fatal ending."[7] I think that I have now said enough to prove the great diagnostic and prognostic value of subcutaneous nodules.

Dr. A. E. Garrod[8] has pointed out that nodules closely resembling those met with in young rheumatic patients are occasionally seen in sufferers from rheumatoid arthritis with no obvious rheumatic antecedents, and who have reached a period of life at which true rheumatic nodules are extremely rare.

A condition which seems to be intermediate between the erythemata and subcutaneous nodules has been described by Dr. Cayley[9] under the title of Multiple Cutaneous Fibrous Nodules Associated with Rheumatism. Dr. Cayley pointed out that in his case "the nodules had all the characters of rheumatic fibrous nodules, except that they were situated in the skin as well as in the fasciae." It has been suggested that circumscribed scleroderma has a possible etiological relation to rheumatism.[10]

Diagnosis from Pyaemia.

One of the difficulties which occurs in the diagnosis of rheumatic fever is to distinguish it from that variety of pyaemia which comes on without any very obvious source of suppuration. A case of this kind was admitted under my care into the Westminster Hospital some years ago.

The patient was a man aged 21, who complained of joint pains and sweating. Eventually the pain became confined to the right shoulder. I had some doubt as to the correctness of the diagnosis of acute rheumatism, as the temperature chart was unlike that met with in this disease, but resembled the temperature chart of suppuration or malaria. It was not, however, until the day before the patient's death that I recognized the error in the diagnosis. At the necropsy one or two pints of a sanio-purulent fluid were found in the right pleural cavity, septic abscesses in the base of the left lung, pus in the right shoulder-joint, and diffuse intermuscular abscess in the left hand and lower end of arm.

Now that we recognize that acute rheumatism should be classed among the diseases due to microbic infection, it can easily be understood that there may be considerable difficulty at times in distinguishing it from other forms of infection. In reference to this point, Fagge and Pye-Smith[11] write: "Sometimes, in spite of all care, diagnosis is impossible till after death, and difficult even then." They mention a case which occurred to Dr. Moxon[12] in Guy's Hospital.

A patient was admitted who had nine days before been attacked with headache, sickness, and rigors, and in whom these symptoms were followed by profuse sweating and by pains in the joints. Salicylic acid was prescribed, but the temperature rose and delirium set in, so that cold baths were employed on several occasions. The question whether the disease could be pyaemia was formally discussed and negatived in favour of the diagnosis of acute rheumatism. He made no complaint of the thigh, as being more painful than other parts, when he was being moved into or out of the bath. Yet at the autopsy not only was there osteitis of the lower part of the shaft of the right femur and of the adjacent epiphysis, but the bone was denuded of its periosteum, and there was a large collection of pus beneath the muscles. There was also suppuration about the shoulder and pyaemic abscesses in the lungs and heart.

Dr. Moxon's case very closely resembles mine, and I felt that I was in very good company when I made the erroneous diagnosis. The moral I would venture to draw from these cases is that in cases of acute rheumatism presenting any unusual features, the possibility of pyaemia should be borne in mind, and careful search should be made for the source of suppuration. Especial attention should be paid to the state of the ears, as one of the most frequent primary lesions is caries of the petrous bone.

An important distinction between acute rheumatism and pyaemia is stated to be that in rheumatism the pain and swelling fly about, leaving one joint, and after a few hours attacking another. Now this is just what happened in my case, and it was this that determined me to adhere to my diagnosis of acute rheumatism. Failure to respond to salicylates should awaken suspicion that the case is not one of rheumatism.

Pyaemia most commonly affects boys and young men, and, as a rule, the skin is dry instead of sweating as in rheumatism; the joints are more frequently hot and of a deeper red colour.

Rigors are uncommon at the onset of acute rheumatism, their occurrence, therefore, should suggest pyaemia rather than rheumatism.

Diagnosis from Influenza.

The onset of influenza is sometimes very difficult to differentiate from that of acute rheumatism, more especially if the former be accompanied by arthritis. There is, however, little or no effusion into the joints in the influenzal cases, but the ends of the joints are tender and enlarged and the seat of most of the pain. In some of the cases the joint affections proved to be rheumatoid arthritis, and others developed into various forms of neuritis. It used to be held that influenza did not lead to valvular disease, but extended experience has shown that this is not true, as cases of endocarditis and pericarditis of influenzal origin have been reported. On the other hand, simple dilatation and various cardiac neuroses, such as bradycardia, tachycardia, and angina, are only too commonly the result of this disease.

It will be found that the salicylates usually relieve the pain and pyrexia of influenzal cases, but the after-history of these cases is different from that of rheumatic arthritis.

Infective Endocarditis.

Infective endocarditis may present joint affections, sweats, and purpuric rashes, and was formerly regarded as rheumatic in origin. In fact, the transition in the symptoms from septic cases to ordinary rheumatic endocarditis is marked by insensible gradations. Still, it is recognized that most malignant cases are produced by streptococci, diplococci, or staphylococci, though the presence of the lesions of former rheumatic endocarditis favours the outbreak of the disease.

Antitoxin Arthritis.

The arthritis which occasionally follows the use of antitoxin is certainly non-rheumatic. As regards the joint affections of scarlatina, at one time they were regarded as nothing more or less than a rheumatic manifestation. Recent investigation, however, has shown that these cases may be grouped under four heads:

1. A simple synovitis, which occurs about the sixth day, and is six times more common than all the rest put together.

2. Septic.
3. Tuberculous.
4. True rheumatism.

The last only occurs during a late state of convalescence, and is always subacute. The early type with which it is usually confounded never recurs, is not accompanied by sweating, does not fly from joint to joint, rarely if ever affects the heart or shows any other rheumatic sequelae, and is specially apt to develop in the tendons on the back of the hand rather than in the wrist-joint. The true rheumatic type is rarer even than the purulent forms, and appears in quite an insignificant proportion of cases.

Gonorrhoea.

The affection of the joints occurring as a result of gonorrhoeal infection is sometimes confounded with rheumatic arthritis. Gonorrhoeal synovitis is usually the result of a gonorrhoeal urethritis, but Mr. Clement Lucas[13] has recorded 23 cases of gonococcus joint disease in infants secondary to purulent ophthalmia, and a few years ago I admitted into the Westminster Hospital a nurse with arthritis due to purulent ophthalmia contracted by infection from an infant she was nursing. Gonorrhoeal arthritis of great intensity may occur in a newly married woman from an old gleet in the husband. I saw such a case in consultation a few years ago, and I had great difficulty in quieting the suspicions of the patient's mother, who was very insistent in knowing what was the cause of her daughter's shoulder and elbow being affected.

Gonorrhoeal arthritis usually comes on in early adult life—that is, more than half the cases occur between 20 and 30. When a patient has once suffered from gonorrhoeal arthritis a recurrence may occur as the result of passing a bougie, exposure to wet and cold, and excessive sexual intercourse.

Now that it is generally recognized that gonorrhoea is something over and above a mere affection of the urethra, we need a term to cover all the complications which may occur as a result of gonorrhoeal infection. I would suggest "gonorrhoemia"; and, just as we speak of pyaemia and pyaemic conditions, so we might talk of gonorrhoemia and gonorrhoemic states.

The symptoms of gonorrhoeal arthritis may come on at any period during the course of a gonorrhoea, most commonly between one week and three months. Generally the discharge has degenerated into a slight gleet, or even apparently disappeared, or there may be only the evidence of a stricture to excite suspicion. At the onset the patient is feverish, and suffers from malaise and anorexia. The tongue is furred. The patient is restless and depressed; sleep is interfered with by the pain. The pyrexia is almost always moderate, and in some cases the temperature remains about normal. Hyperpyrexia does not occur. Unlike ordinary acute rheumatism, there is little tendency, even in young subjects, for the heart to be affected, though some cases of malignant endocarditis due to the gonococcus have been recorded.

The inflammation is usually the lower extremities, the joints of the upper extremities being comparatively rarely attacked. The knee is the joint pre-eminently liable to attack. The plantar fascia is very frequently affected. The pains are worse at night, and are of an aching, grinding character. The lesion seems to affect the synovial membrane and ligaments of the joints. Any of the joints may become affected, and Mr. Brodhurst records a case in which finally ankylosis of every joint occurred. The temporo-maxillary joint is not infrequently attacked.

The joints of the fingers are very seldom attacked, a point of distinction from subacute cases of osteo-arthritis in young subjects. Each joint which becomes affected suffers for many days or even weeks, and there is not the rapid metastasis from joint to joint as occurs in rheumatic fever. Physical signs are well marked—that is, the joints are much swollen, both from intra-articular effusion and from exudation around. A very characteristic symptom of gonorrhoeal arthritis is the implication of the fibrous structures, especially of the loins, the plantar and palmar fascia, the tendo Achillis, and the sheaths of the nerves—for example, the sciatic. The muscles or their aponeuroses appear to suffer, so that the patient may complain of universal pain.

A peculiar form of inflammation of the eye frequently accompanies gonorrhoeal arthritis. Usually first one eye, then the other is attacked. There is injection of the small radiating vessels of the sclerotic which surround the cornea, that is, a sclerotitis, sometimes accompanied by iritis and catarrhal ophthalmia. As regards the diagnosis of the disease the presence of a discharge is obviously not sufficient to establish the point, for a man suffering from gonorrhoea may be attacked with rheumatic fever or gout. The chronicity of the disease, the implication of the fascia and other fibrous structures, the failure of salicylates to give relief, the moderate amount of pyrexia, the absence of cardiac complications and the presence of ophthalmia will usually suffice to determine the diagnosis. In doubtful cases a bougie should be passed in order to detect any stricture that may be present.

A gentleman aged 33 was sent to me on account of a painful and swollen knee, which was considered to be either gouty or rheumatic, but treatment directed to these conditions failed to give relief. It then occurred to me to inquire into the state of his urethra. The patient was found to have a stricture, the outcome of gonorrhoea contracted fifteen years previously. As soon as this had been thoroughly treated the patient lost his joint trouble, and has remained free from it.

Pneumococcic Arthritis.

Just as at one time gonorrhoea was regarded simply as a purulent inflammation of the urethral mucous membrane, so pneumonia was considered to be solely an inflammation of the lung substance. But even before the discovery of the pneumococcus it began to be realized that pneumonia was not infrequently associated with conditions that could only be explained on the ground of infection. Since Weichselbaum and Fraenkel in 1886 demonstrated the presence of the diplococcus in most cases of lobar pneumonia, we now know that the infection of pneumonia may be very widespread. As, for example, pneumococcic empyema, pneumococcic inflammation of the anterior mediastinum, of the meninges of the brain, of joints, and most important of all, the pneumococcus appears to be the most frequent of the micro-organisms giving rise to malignant endocarditis. On the present occasion, however, I must limit my remarks to pneumococcic arthritis. The cases of this disease hitherto reported have been few in number. I have only seen one myself, and that was in a child. On going over the *Transactions of the Clinical Society*—that storehouse of cases of unusual nature—I can find mention of only one case of pneumococcal arthritis.[14]

It is to be noted that in almost all the cases the arthritis followed the onset of the pneumonia at intervals varying from a few days to a fortnight. Therefore, if a patient suffering from, or recently convalescent from, pneumonia has any arthritic symptoms, the probability of this being due to pneumococcal infections should be borne in mind. In cases which occur independently of pneumonia the diagnosis can only be made by a bacteriological examination, though in a case reported by Mr. Barnard,[15] where the knee-joint was opened, "the cavity of the joint was full of clots, which so closely resembled those seen in pneumococcal empyemata that a diagnosis of pneumococcal arthritis was at once made." This was confirmed by bacteriological examination.

The disease is one attended with a very high mortality. Of 31 cases collected and analysed by Dr. Cave,[16] 23 died and 8 recovered. As a rule it affects adults or persons of advanced years, and males more frequently than females. The arthritis is commoner in the upper extremity than the lower, and in only about one-third of the cases was there a multiple joint affection. There is a very great difference in the clinical picture presented by these cases. In the mildest form there may only be slight pain and swelling limited to a single joint, whereas in the gravest cases there may be intense inflammation and distension of the joint and oedema of adjacent parts, going on to destruction of the ligaments and cartilages.

I do not pretend that I have by any means exhausted all the conditions which may simulate acute rheumatism. For instance, I have said nothing about gouty arthritis or rheumatoid arthritis; but I think that I have brought forward quite sufficient material to give rise to a good discussion, and it is very often the case that there is much more to be learned from the discussion than from the paper which opened the debate. I trust that this may be

the case on the present occasion, as I am only too conscious how sketchy my paper has been.

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An Address

ON THE

DIAGNOSIS AND TREATMENT OF MORBID CONDITIONS OF THE PLEURA.

DELIVERED AT A JOINT MEETING OF THE BURNLEY DIVISION OF THE BRITISH MEDICAL ASSOCIATION AND THE BURNLEY MEDICO-ETHICAL SOCIETY.

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IT is impossible in the time at my disposal to discuss adequately the morbid conditions of the pleura, and rather than touch lightly on them all I will pass over some in silence, so as to be able to deal more fully with the others.

INDICATIONS FOR PARACENTESIS IN PLEURAL EFFUSION.

If I were asked to state in a sentence the indications for paracentesis in pleural effusion, I should say that every effusion that was big enough to diagnose was big enough to tap. This would be with the obvious reservation that effusions apparently small and unattended by any special local or constitutional disturbance should be left for a reasonable time in the hope that they may undergo spontaneous absorption. When the physical signs point to a large effusion, or when the symptoms, such as dyspnoea, indicate serious embarrassment of the heart or lungs, the operation should be performed without delay. But the persistence of signs of a small effusion is no less an indication for paracentesis, as may be seen from various considerations. In the first place, the extent of the physical signs is not always proportionate to the size of the effusion, which may be much greater than it appears to be. In the second place, until we see some of the fluid, we can never be certain as to its nature, whether serous, purulent, or hydatid; and thirdly, the prolonged presence of a small collection of serous effusion in the pleura is not to be looked on with indifference. Apart from the mechanical compression which it exerts on the lung, if we accept the teaching of Sir A. E. Wright and his school, we must believe that a tuberculous effusion having a lower tuberculo-opsonic index than the other fluids of the body favours the existence of the bacilli in the parts which it bathes, and so ought to be got rid of as speedily as possible.

THE PERFORMANCE OF PARACENTESIS.

Having decided that paracentesis is to be performed, we should select a trocar and cannula of sufficient calibre to allow pus to flow through it. I employ the medium sized cannula supplied with Potain's pneumatic aspirator. I find Potain's pneumatic aspirator the most convenient for general use, but good results may be had with a simple tube acting as a siphon. The practice of making a preliminary exploration with a syringe and a fine needle is superfluous and undesirable. If fluid is found, the practitioner proceeds to employ the aspirator, and so two punctures are inflicted where one would have sufficed. If the result is negative the operator is in doubt whether the small needle was not blocked. The accidental puncture of the lung with a clean needle is not followed by any serious consequences. Certain points need to be especially attended to. The apparatus must be tested with water each time it is employed. The trocar and cannula must be introduced far enough to make it certain that the pleura has been reached, the flow must be slow, and not more than 50 oz. should be withdrawn at the first operation. The remainder will probably undergo absorption; if it does not, it is not a serious matter to repeat the operation. It is well to tell the patient or his friends that you have not taken it all away.

MALIGNANT DISEASE.

The presence of blood in such amount as to give a red colour to the fluid is not uncommon, and is of no special significance, but a brownish or chocolate colour due to altered blood suggests the possibility of the existence of malignant disease. Sometimes the character of the cellular elements may also suggest the same condition. Malignant disease of the pleura or of the lung in such a position as to cause signs associated with the pleura is, however, such a rare event in the experience of any one individual practitioner that it is difficult to construct a clinical type for the disease. In general I should say that we ought to suspect the possibility of malignant disease in any case of pleurisy which, as regards its signs, symptoms, and progress, does not conform to the types with which we are familiar. Signs of pressure on structures not usually involved in pleural effusion, or of pressure not relieved by the removal of the fluid, strongly suggest a new growth. In one case there was oedema in the mammary region, enlarged axillary glands, distension of one jugular vein, and a slightly brassy cough. The trocar was felt to enter a hard mass. In another case there was paralysis of one vocal cord. In a woman lately under my care one of the earliest circumstances to arouse suspicion was finding that the effusion was of the colour of strong tea, and it was found to contain epithelial cells. Hard glands were present in the neck and axilla, and there was distension of the jugular veins on both sides. In another case there was nothing to suggest malignant disease until the pleura was opened for what seemed to be an ordinary empyema. It was then found that the pus lay in a cavity in a conical mass of new growth which extended for a considerable distance into the lung. In some cases one remains in doubt up to the very last whether one is dealing with malignant disease or tubercle, and even at the *post-mortem* examination a skilled pathologist may be unable to distinguish between them until a careful microscopic examination has been made. This actually happened in the following case:

A medical practitioner, aged 57, had pneumonia of the right lung in 1902, and made a good recovery. On June 8th, 1904, he consulted me with a large pleural effusion on the left side, the dullness reaching up to the clavicle, and the heart being pushed over to the right side. During the following three and a half months he was aspirated eight or nine times. Latterly the effusion was blood-stained, and its removal made little or no difference in the physical signs, and there was evidently a solid mass in the lung or pleura. During this time he was almost constantly in bed, complained of pain in the stomach, often severe, and got thin and weak. Tubercle bacilli were looked for in the sputum, but none were found. The temperature was moderately raised. The liver was enlarged. Towards the close there was dysphagia and severe dyspnoea, and a pericardial rub was heard. I could not make up my mind between a diagnosis of tubercle and of malignant disease, though I inclined to the former. He sank gradually, and died of asthenia on September 24th.

At the necropsy the naked-eye appearances led to the belief that the case was one of malignant disease. The right lung was normal, but the left lung was collapsed, the pleura being from ½ to ¾ in. thick. The mediastinal glands contained yellowish masses, and there were nodules in the pericardium. Microscopically bacilli were found in the left pleura and in one of the glands, and miliary tubercles in the collapsed lung.

HAEMORRHAGIC EFFUSION.

A remarkable condition, of which I have seen two instances during the last eighteen months, is the presence in the pleura, without any obvious cause, of an effusion consisting of almost pure blood. I am inclined to think this may be dependent on some constitutional condition, allied to the haemorrhagic diathesis or the purpuric state, as seems to have been the case in the following instance:

A railway inspector, aged 57, fell against a fender and fractured one or two ribs on March 8th, 1908, and was treated as an out-patient at the Royal Infirmary. I did not see him at that time, but I was informed that no effusion was suspected until about March 18th, when extensive dullness was observed and a needle inserted. No fluid, however, was found. On March 27th—three weeks after the accident—exploration was again

performed, and 27 oz. of nearly pure blood were removed. This was repeated three times during the succeeding seventeen days, 107 oz. of practically pure blood being withdrawn altogether. It might be said that this was simply a case of haemorrhage from a ruptured intercostal vessel, but the assistant physician, who first saw the case in my absence, is positive that there was no effusion of any kind there at that time. Further, it was evident that fresh blood was poured out after the earlier tappings. Now, there are two points—one in the past history, the other in the subsequent development of the case—which I think throw light on the cause of the haemorrhagic effusion. The first is that seven years before he brought up a large quantity of blood, and was told he had broken a blood-vessel; the other is that on June 15th last year he was again admitted to the infirmary, this time with painful anasarca in the lower extremities accompanied by a persistent recurring purpuric eruption.

To my mind it is reasonable to conclude that the bleeding seven years before, the haemorrhagic effusion, and the purpuric eruption shortly after it had all a common origin. In the other case, a gentleman wintering in Egypt, the most probable cause was thought to be the rupture of some pleural adhesions.

EMPYEMA.

Passing to the consideration of purulent effusion into the pleura (empyema), I maintain that there are no signs or symptoms by which we can with any approach to confidence distinguish it from serous effusion until some of the fluid has been removed for inspection. Hectic fever is common enough in cases of serous effusion, as might be expected from the frequent coexistence of tubercle, and cases of empyema are generally attended by only a moderate rise of temperature, rarely above 102°, and generally less. No doubt a leucocytosis, if proved by a competent observer to be present, will be a point in favour of suppuration, but it is seldom of practical application for diagnosis except in hospital. The diagnosis of empyema being, then, only established on finding pus flow into the aspirator, we have to consider how we shall deal with the case, first at the moment, and secondly with a view to permanent recovery. Many of these cases are suffering from urgent distress from dyspnoea and toxaemia, and are in need of immediate relief, and my practice is to continue the extraction and remove a considerable quantity of pus, perhaps a pint. By this means the urgent symptoms are at once relieved for a time, the temperature becomes normal, and the patient will probably have a good night. We thus gain time to make our arrangements for performing the greater operation under the most favourable conditions, and to get the consent of the patient or his friends. After many years' consideration of the subject, I have come to the conclusion that there is only one line of treatment to be adopted in every case of empyema, and that is the establishing free drainage by incising the pleura and introducing a good size drainage tube. I know that authorities allege that cases of empyema in which the only organism present is the pneumococcus may recover after a simple aspiration, and a few cases are recorded in various works in which such recovery has taken place. At one time it was my ambition to try to get cases of empyema well by aspiration alone, but I never succeeded; they all had to come to a free incision; and when one saw the great masses of lymph which sometimes presented in the wound it was not surprising that the attempt to evacuate the pleura through a cannula had failed.

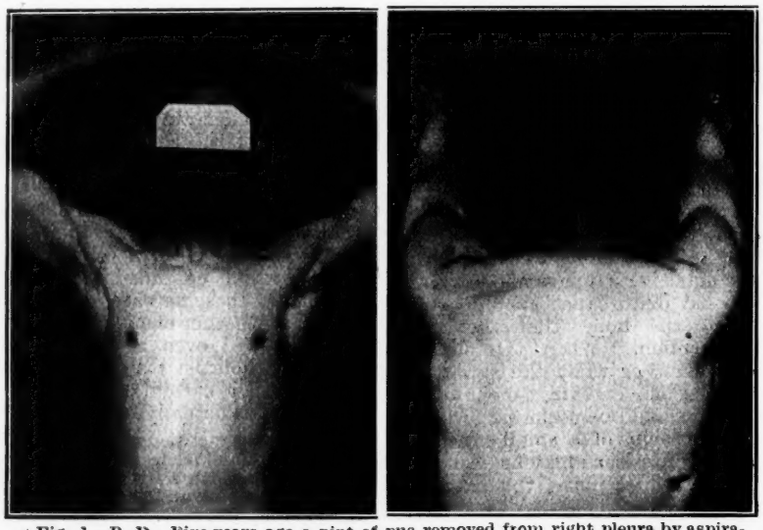


Fig. 1.—R. D. Five years ago a pint of pus removed from right pleura by aspiration, and next day a free incision, with removal of piece of rib, made into the pleura. Complete expansion of lung.

Finally, the results of free incision on the condition of the lung and the general health of the individual are so excellent, that I doubt whether a cure by aspiration would be worth aiming at even if there were any reasonable probability of its being attained.

The dread of a free incision into the pleura was largely the outcome of theoretical considerations. It was supposed that as soon as air was admitted freely to the surface of the lung there would be nothing to counteract the elastic contractility of the organ, which would remain ever after in a state of collapse. I confess that it is not altogether easy to understand the full expansion commonly met with after the operation for empyema, amounting in some cases apparently to a *restitutio ad integrum*, but there is one important consideration that is apt to be overlooked—namely, that at every forcible expiratory effort, whether coughing or singing, or loud speaking, the collapsed lung is fully inflated by air driven out of the sound lung.

The belief that permanent collapse of the lung, more or less complete, is to be expected to follow the free admission of air into the pleura has led to the expenditure of no small amount of ingenuity in the vain and pernicious attempt to drain an empyema in such a manner as to allow the pus to escape, while preventing or restricting the entrance of the air. The usual result of such proceedings is that the drainage is not free, that septic organisms gain entrance to the pleura, that the discharge becomes offensive, and that after much useless suffering and delay resort has to be had to a free incision. Many of you may think that at this time of day it is like flogging a dead horse to labour this point; but unfortunately I have good reason to believe that the old fear of a free opening is by no means extinct, and that futile attempts to limit the access of air by valvular openings or other pernicious contrivances are still being made, with the most undesirable results.

Feeling as I do that these practices can only be due to a want of appreciation of the good results that follow the establishment of a free opening into the pleura I have tried to trace a number of cases of empyema which have been operated on for me during the last few years at the Royal Infirmary. I have written to thirteen and have got in touch with eight. Of these only one is what one might call a complete failure. The left lung appears mostly solid and collapsed, with falling in of the ribs and curvature of the spine. But I do not think we can attribute this to the operation, since it is stated in the notes that at the time of admission the left side of the chest was considerably deformed. Two pints of pus were removed. A second case is that of a tall strongly-built girl operated on in August, 1907, at the age of 17. At present the left (affected) side measures 1 in. less than the right, and the shoulder has dropped somewhat. The movement of both sides of the chest is poor and she evidently takes no trouble to expand it.

The third case, operated on December, 1904, I have not seen, but I hear he has been "all over the world" since, and for a time joined the navy of a South American republic as a cornet player. The other 5 cases have made a recovery so complete that I think that if it were not for the scar it would be impossible to recognize that anything had ever been wrong with the pleura or lung.

R. D., a painter, aged 37, was admitted on October 29th, 1903. By aspiration 20 oz. of pus were removed, and next day a free

incision was made. I saw him this month, after five years. The chest expands well and equally (Fig. 1); the breath sounds are heard well all over; there is no dullness on percussion. His general health is excellent.

W. W., a boy aged 2½. Admitted March 20th, 1904, about three weeks after an attack of pneumonia. Left side of chest was distended, and about 2 pints of pus were removed through a free incision. I saw him again this month, nearly five years later. He goes to school, and is in good health. The left side shows slight flattening in front, but measures only ½ in. less than the right. The movements are approximately equal on both sides and there is good expansion, and the breath sounds are normal. The lung seemed to descend a little during inspiration.

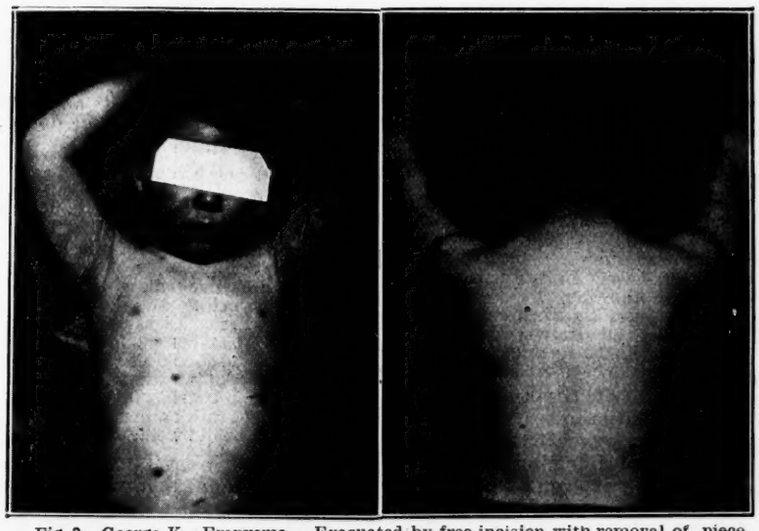


Fig. 2.—George K. Empyema. Evacuated by free incision with removal of piece of rib early in September, 1908. Complete expansion of lung.

Joseph McE., aged 9. Admitted on October 7th last year with signs of a large pleural effusion. The usual operation was performed under eucaine, and 4 pints of foul-smelling pus was removed. I saw him a few days ago. He looks well, feels well, and goes to school. The chest looks symmetrical; by measurement both sides are equal and expand equally, the total difference between inspiration and expiration being 2 in. Percussion and auscultation normal. The heart is not displaced. By percussion I determined that the lung border descends as it normally does during inspiration.

George K., aged 4, was admitted on August 31st, 1908, with signs of effusion in the left pleura. He had been treated elsewhere for pneumonia several weeks before. Pus was found, and a free incision was made, a piece of rib being removed. He made a satisfactory recovery, but shortly after being sent to a convalescent home he developed scarlatina, so I have not been able to obtain exact particulars of the condition of his lungs.*

The other case I will relate presently, but I will briefly refer here to one which I have met with in private.

A gentleman whose case I knew well had empyema at the age of 40. He was first treated by a tube on the siphon method, the discharge became septic, and two free incisions were made and a tube passed through from one to the other. Some twelve years later I examined him for insurance. Not only was there no falling in of the chest, and the movement of the side was good, but I determined by percussion that there was an actual descent of the lung during inspiration.

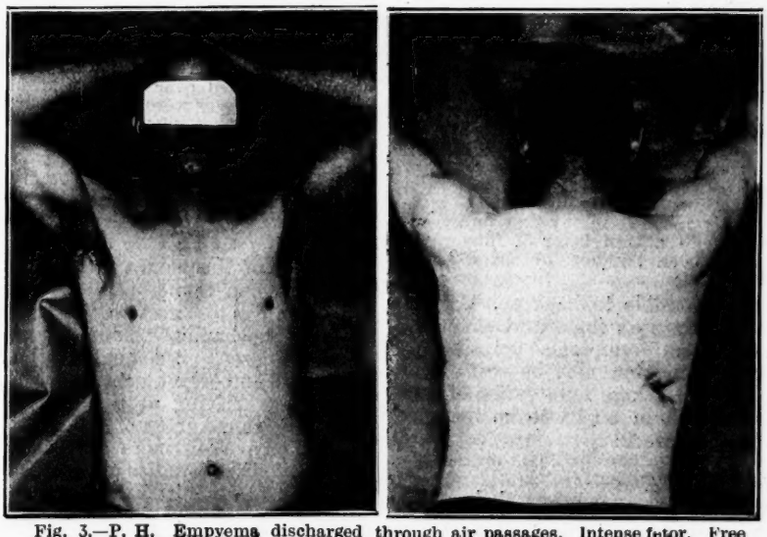


Fig. 3.—P. H. Empyema discharged through air passages. Intense fetor. Free incision into pleura, with removal of a piece of rib in April, 1908. Complete expansion of lung.

This observation, by no means an isolated one, seems, if correct, to imply that the pleural cavity may be actually restored after the closing of an empyema. I have never had an opportunity of investigating this point *post mortem*, but it does not seem to be beyond the bounds of possibility when we remember that surgeons who have operated on a case of appendicitis or other condition attended by extensive peritoneal adhesions have found no trace of these when they have had to open the abdomen at some subsequent date.

I do not bring forward these few cases as proving that the prognosis in empyema is exceptionally good. In some cases the lung is permanently crippled, though I believe in these the damage has been done before the operation or results from causes, such as cirrhosis, unresolved pneumonia, or tuberculosis, which are independent of it. My cases are enough to prove that a free opening into the pleura need not be followed by permanent collapse of the lung, nor by any serious interference whatever with its functions.

Operation.

The operation now generally performed at the Liverpool Royal Infirmary is the removal of a piece of rib by the subperiosteal method and the insertion of a wide tube with a broad flange. By the local injection of eucaine or novocain the incisions are made almost painless, and the risk of giving a general anaesthetic is in most cases avoided.

Spontaneous Evacuation of an Empyema.

An empyema overlooked and left alone will, like an abscess elsewhere, make a way out for itself. At the present day an empyema is hardly likely to be allowed to burst externally; the only instance I remember seeing was when I was house-physician twenty-six years ago. But it is not so very uncommon for an empyema to discharge itself through the air passages. I have notes of 5 cases in my wards during the last eight years in which this accident seems to have occurred. The usual history is that after some acute illness the patient has coughed up a large quantity of matter, perhaps highly offensive to the smell, and the expectoration has continued. No doubt patients sometimes die asphyxiated before we can be called to them. When we find a patient with a history such as I have sketched and expectorating pus, we try to localize the suppurating cavity, and if we find dullness or other indications of pleural effusion or thickening, we make one or more explorations with the aspirator. If we find pus, a free incision should be made, a tube inserted, and the case treated as one of ordinary empyema. When this is done, the prognosis is no worse than in other cases of the disease, as is illustrated by the following:

P. H., aged 47, a railway worker, was admitted on April 6th last year. About six weeks earlier he had had a rigor, followed

* He was brought to see me on March 16th, when the photograph (Fig. 2) was taken. His appearance was that of robust health. He stood quite straight; the shoulders were level and not rounded. There was no sensible falling in of either side of the chest. The right side at the nipple measured 11½ in., the left 10¾ in. Movement was equal on both sides, the percussion resonance and the breath sounds were normal. Except for the presence of the cicatrix it would be impossible to tell that anything had been wrong with the chest.

by cough (probably pneumonia), and after about three weeks copious very offensive expectoration came on. When admitted he was in great distress, coughing incessantly and bringing up purulent fluid. The fetor was intense. There was dullness over the right side of the chest, and succussion splashing was heard. I at once removed nearly half a pint of stinking pus mixed with air from the right pleura, which at once relieved his urgent distress, and later in the day my colleague, Mr. Litler Jones, performed the usual operation for empyema. The patient made a good recovery, except that a small piece of rib necrosed and had to be removed at a subsequent operation. When he came to report himself a few days ago he was in good health and at his work. The two sides of the chest appeared equal in measurement and in movement (Fig. 3). There was no dullness on percussion, and, except for the presence of a scar, it would have been impossible to say that anything had been wrong with the chest.

Unfortunately, however, it is not always possible to locate the suppurating cavity. Apparently, after the abscess has burst into the air passages, it may contract into a mere sinus, which continues to pour out offensive matter indefinitely, but eludes the attempt to find it by exploration. How easily this may happen is illustrated by a case I saw in consultation several years ago:

A lady was expectorating offensive matter, and had signs pointing to an empyema at the right base. I made an exploratory puncture, being guided as to the spot by some very localized moist sounds, and found pus. Mr. Bickersteth was called in, and made a free incision and drained the cavity successfully. The cavity was found to be no bigger than a walnut, showing how easily it might have been missed.

It is well known since the time of Hippocrates that patients may recover without operation after evacuation of an empyema through the air passages, but it is only after much suffering and the risk of infecting the other lung, and they sometimes die; and if ever I meet again with such a case, and fail to find the matter by exploration with the aspirator, I shall feel it my duty to advise the making of a free opening and a thorough examination of the pleura and the surface of the lung.

Difficulties in Diagnosis.

I will now refer to some cases which serve to illustrate the peculiar difficulties which we may meet with in the diagnosis and treatment of cases with signs suggestive of effusion at the lower part of the pleura.

Suppurative Pericarditis.

Benjamin P., aged 7, was admitted to my ward after a week's illness. The left lung was in a state of pneumonic consolidation. The crisis took place the day after admission, but after the temperature had been normal a few days it became hectic. Dullness persisted, and the heart seemed to be pushed over towards the right. I suspected that an empyema had formed, and made an exploratory puncture over the left lung, and found some pus. The usual incision was made, but little or no matter was found and none came through the tube. Two days later I punctured the pericardium and found a little blood-stained serum containing pneumococci. At the autopsy we found carnification of the left lung. The pericardium was greatly thickened and the heart was adherent to the chest wall. At the back and towards the left of the heart there was a collection of pus, about 6 oz., lodged between the two layers of the pericardium. This I had evidently reached in my first puncture, which must have gone through a thin layer of lung. On operation it could only have been reached by turning the lung aside.

Such a case is probably impossible to diagnose. At the same time it serves to illustrate an important practical point—namely, that signs and symptoms pointing to empyema consequent on pneumonia may be really due to pus in the pericardium, and where exploration of the pleura is negative pyopericardium ought to be thought of. I had such a case only last week.

Subdiaphragmatic Inflammations.

Inflammatory or other diseased conditions below the diaphragm are likely to give rise to signs pointing to disease of the pleura, and these may for a time quite overshadow the primary disorder. Thus I have known the pleura to be opened for an empyema, and hydatids to be found in the pus, and on further exploration the hydatids were found to be merely a colony connected with a much larger mass growing in the liver.

The large single abscess of the liver may, if it points upwards, suggest effusion or suppuration above the diaphragm, and if it is actually attended with a serous effusion in the right pleura, as happened in the following case, the true nature of the case may be overlooked even on the operating table.

A Chinaman, aged 36, was admitted on June 8th, 1904, with signs and symptoms pointing to effusion into the right pleura. I only saw him just at the end of my visit; his symptoms were urgent and I aspirated him at once and found a considerable quantity of pus. I directed that one of the surgical staff who was in the building should be requested to perform the usual operation for empyema. On my next visit I was informed that this had been done, but that only a serous effusion and not an empyema had been found. On seeing the patient again I found that the liver was enlarged downwards while the diaphragm was pushed upwards and lay against the operation wound in the chest.

I saw at once what had happened in this case. The needle I had plunged into the chest had traversed the lower part of the pleura, missing the effusion, and piercing the diaphragm had tapped an abscess in the liver. The surgeon, however, advancing by successive stages, had laid open the pleura, and finding there a copious effusion of some kind, thought he had done all that was required by evacuating it.

In another case a young woman aged 20, who had never been out of Liverpool, had an irregular temperature, with night sweats, for several weeks, and I suspected she was tuberculous. The only physical signs obtainable were some dullness on percussion and impairment of the breath sounds on the right side of the back as high as the angle of the scapula, and I made a puncture in this region, with a negative result. Two months later she returned to the infirmary with an oedematous swelling over the dull area. I was now confident of the existence of pus, and I explored, and on pushing the cannula deeply in, I drew off 2 oz. of fetid pus, looking like anchovy sauce, which had evidently come from the liver. Here all the indications pointed to empyema, and considering that the patient had never been abroad I do not think a correct diagnosis was possible before it was made. She did well after operation.

Dr. Samuel West alludes to the occurrence of fetid empyema in connexion with ulcer of the stomach, though I do not find any instance of its occurrence in his book. If the fundus of the stomach were a frequent seat of ulcer the association might be fairly common, but in point of fact it must be extremely rare. Only last week, however, I saw in consultation a case in which I believe the empyema had arisen from an extension through the diaphragm of infection and inflammation starting from a gastric ulcer.

Miss B., aged 24, had had gastric trouble for a considerable time, and a year ago was attended for what was thought to be gastric ulcer. At that time she had severe pain coming on directly after food; she had vomiting, though there was no haematemesis. She got better, but towards the end of November the symptoms returned. On the morning of December 26th, possibly not unconnected with the season's festivities, she had severe vomiting and pain referred particularly to the back of the left shoulder. Ten days later a practitioner was called in and found signs of left pleural effusion. The temperature became hectic and there were rigors, and oedema appeared over the left lower ribs. On January 14th 25 oz. of fetid pus were withdrawn and a free incision made. In the absence of pneumonia or other lung trouble, and of tubercle, with the history suggestive of gastric ulcer and with the knowledge that effusion came on at a time when the gastric symptoms were severe, I feel justified in concluding that the empyema in this instance was due to extension of infective inflammation from an ulcer in the stomach.*

In closing this review of the clinical aspects of morbid conditions of the pleura two considerations are especially brought home to me. One is the extent to which the physician has to resort to the surgeon or to the employment of mechanical means for the successful treatment of these cases. But behind all this lies the other and still more important consideration—the means which we possess of arriving at a correct diagnosis. For many years we, as members of a learned and progressive profession, have been more and more attracted to the new and fascinating studies of bacteriology, haematology, and pathological chemistry, and we are not without grounds for believing that if we are ever to arrive at a knowledge of the ultimate processes which underlie the phenomena of health and disease, it will be by pursuing investigations on these lines. But, though I should be among the last to belittle the value of the incubator, the microscope, and the test tube as means for extending our knowledge, I am convinced that in the daily routine of our work as medical practitioners they are of very limited application. Such practical results as they do yield are only of value when obtained by those who are constantly engaged in that kind of investigation, and in the case of the inexperienced they are likely to be absolutely misleading. It is on the physical examination and the careful study of the patient

*I am informed that this patient has made a good recovery, May 11th.

at the bedside, not on work in the laboratory, that we have in the main to rely in the diagnosis and prognosis of our cases; and we will all do well to beware lest, in our eagerness to employ the more recondite proceedings which are continually being offered for our aid, we neglect the first principles of clinical investigation—the training of the eye, the hand, and the ear.

A Clinical Lecture
ON A
CASE OF BACILLUS PYOCYANEUS PYAEMIA SUCCESSFULLY TREATED BY VACCINE.

DELIVERED AT THE BRISTOL GENERAL HOSPITAL.

BY ERNEST HEY GROVES, M.S., F.R.C.S.,
ASSISTANT SURGEON.

GENTLEMEN,—The boy you see before you to-day, with bright eyes and fat cheeks, is so different from the wretched spectre whom some of you saw with me last autumn, that it may be difficult for you to believe that it is the same patient. But although he has emerged victorious from the struggle with disease, he has been left with lifelong scars of the strife, which afford a ready means of identification.

History.

There seem to be no facts in his past or family history which have any bearing on the case until November, 1907, when at the age of 8 years he developed two abscesses, one over the right Poupart's ligament, and the other on the inner side of the left thigh. He remained in bed for this condition and the right abscess quickly healed, but the left much more slowly; when it had healed he still remained with a painful stiff left hip-joint.

He first came under my care, at the age of 10, in August, 1908, for lameness, due to fixation of the left hip-joint. He had marked adduction of the thigh, which necessitated the pelvis being tilted up on the left side, so as to cause much apparent shortening of the limb. There was also about 1 in. real shortening—that is to say, that whilst the left heel was 3 in. off the ground when the boy stood upright, two-thirds of this was due to the tilting of the pelvis, and only one-third to loss of length in the hip. The left hip-joint was the seat of firm fibrous ankylosis, upon which weight extension had no appreciable effect. A skiagram showed thickening of the neck of the left femur, irregularity of the surface of the head, with a partial upward dislocation. The acetabulum was enlarged upwards—no doubt by a process of caries affecting its superior margin.

Operation.

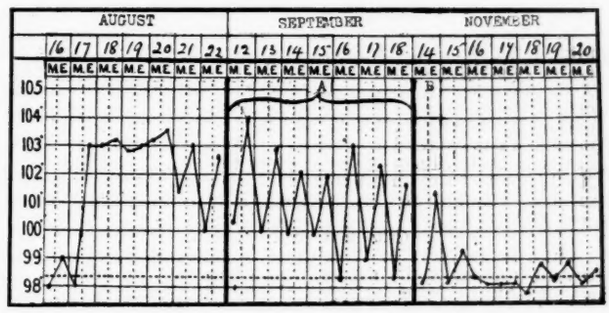
On August 17th, 1908, the left hip-joint was exposed through an anterior incision and the capsule opened. The head of the femur had not left the acetabulum, but the latter cavity had extended upwards and backwards. The head of the femur and the surface of the hip-socket were carious and divested of cartilage. The diseased bone was thoroughly scraped away and the adducted position of the leg corrected forcibly after tenotomy of the tendons of the adductor muscles. There was much oozing from bone and muscles, and a drainage tube was left in the wound. The aseptic method was used throughout the operation, the skin having been prepared with 1 in 500 spirit and biniodide lotion, and dry swabs, with sterilized water for flushing were employed for cleaning the wound. The limb was put up in extreme abduction and with weight extension.

After-history—Pyaemia.

The next day, in the evening, the temperature rose to 103° F., and it remained near this point for five days, after which it underwent those daily fluctuations characteristic of a hectic fever. The wound was opened up, but the discharge was scanty and more sanious than puriform. I need hardly remind you that this scantiness of purulent discharge from the primary focus of septic infection is always of ominous import, and indicates that the vital powers of resistance and reaction are overwhelmed and that the sepsis is spreading further. A urethral discharge often ceases when acute epididymitis occurs, and the stinking matter from the middle ear dries up when the mastoid or lateral sinus are affected.

The boy became noisy, delirious, and extremely ill, so that he had to be moved to the isolation ward. It was very difficult to get him to take even liquid food, and he became very rapidly emaciated. On August 21st he developed an inflamed swelling of the right thumb. This was opened and found to contain thick gelatinous pus in the last joint. Unfortunately, owing to the pathologist being away on his holiday, the swab taken from this abscess was not examined. During September and October other abscesses developed, and these were chiefly in the region of the pelvis, one very large one being over the right hip-joint. These occurred very rapidly and attained a great size in a very short time. He was treated with injections of various polyvalent antistreptococcus serums without any effect.

Very foolishly I imagined that it was a condition of mixed infection, and I thought, therefore, that vaccines or serums could not be expected to do much good. However, fortunately for the boy, this unwarranted assumption was not allowed to go unchallenged, and on October 25th I asked the pathologist, Dr. Dunkley, to see him. He took swabs from the original wound over the left hip, and from this, to my great surprise, obtained a pure culture of the *Bacillus pyocyaneus*. Now this is a germ which we are too apt to treat lightly. It is true that when it causes blue pus on the surface of an exposed wound it may do but little harm, but this is also the case with other pyogenic organisms—for example, streptococci or staphylococci—but when it exists in pure culture in the depths of the tissues it causes a most deadly septic infection. This has been demonstrated in the case of the peritoneum, for example, by Dudgeon and Sergeant.



A. This represents the actual temperature on the dates given, but it almost exactly represents the course of the temperature for twelve weeks—namely, from August 22nd to November 14th.
B. Second injection of vaccine.

Dr. Dunkley prepared an emulsion of the very bacilli grown from the patient's wound, and this, having been heated to 60° C. for an hour, was used as a vaccine. On November 6th 40 millions of the dead bacilli were injected, but there was no appreciable result. On November 14th a further dose of 60 millions was administered, and the next day the temperature remained normal and has remained so ever since. On November 24th, December 8th, January 1st and 16th the injections were repeated, 100 million bacilli being used each time. From the date of the second injection the boy's whole condition has rapidly improved. He has slept quietly, taken his food well, become plump and well nourished, and all the abscesses and sinuses have healed except a small one on the inner side of the left thigh which is quite superficial.

A more striking example of the potency of vaccine-therapy could hardly be imagined.

One further point remains to be told. When his general condition had ameliorated and he could bear to be touched, it was found that the right hip was deformed and displaced. It was much shortened and adducted, and the head of the femur was felt in the buttock. Undoubtedly the joint had been the seat of a pyaemic abscess which by a distension of the capsule with pus had led to a dislocation of the joint. Curiously enough this one patient has exhibited three different varieties of pathological dislocation of his joints. They are:

1. Dislocation by destruction of bony surfaces; illustrated by the tuberculous left hip.
2. Dislocation by destruction of ligaments and the traction of muscles; illustrated by the right thumb.
3. Dislocation by distension of the capsule; illustrated by the right hip.

A skiagram showed the dislocation of the right hip into the sciatic notch, and also the fixation of the left hip in the acetabulum in a position of abduction, a position which compensates for real shortening by a tilting down of the pelvis on that side.

[Note.—The dislocated right hip was reduced by manipulation under an anaesthetic on April 2nd, and put up in a position of eversion and abduction.]

CONCLUSION.

I would summarize the points which I have learnt from this case as follows:

1. The danger of trusting to an "aseptic" system of surgery when dealing with the region of the groin. I now always use 1 in 2,000 biniodide of mercury as lotion for these cases when asepsis is doubtful.
2. The absolute importance of an exact bacteriological diagnosis in every case of suppuration.
3. The great gravity of *Bacillus pyocyaneus* infection.
4. The potency of vaccinial treatment of this infection.

A CASE OF TUBERCULOUS MENINGITIS WITHOUT TUBERCLES.

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[From St. George's Hospital and Clinical Laboratories.]

THE following case of tuberculous meningitis seems worthy to be recorded, as it exhibited several unusual and important features:

C. M., a boy aged 8 years, was admitted to St. George's Hospital under Dr. H. D. Rolleston. The history obtained from the patient's mother was as follows: Onset gradual and indefinite. The child had "two severe frights" six weeks and two weeks respectively before admission to hospital. Since the latter the patient has been "morbid," and has complained of pains in the head and has vomited frequently. During the last few days it has been increasingly difficult to get the child to take his food. No history of any head injury. No previous illness except measles. History of tuberculosis in family of maternal grandmother.

Condition on Admission.

Child looks very ill. Lies quite listless, but cries when disturbed. Occasionally shows signs of understanding what is said to him. Some external strabismus of right eye. No voluntary movements of eyes performed. Edges of optic discs blurred, but no definite optic neuritis. Some paresis of left side of face. Occasional twitching movements of orbicularis oris, and clonic movements of the muscles of the upper extremities and of the hamstring muscles on both sides. No note of any head retraction or stiffness of neck. Muscles well nourished. No definite loss of power in any group of muscles. No hypertonicity. The legs are kept flexed at hip and knee, but can be readily extended passively. No loss of pain sensation. Knee and ankle jerks absent. Plantar reflex gives flexor response on both sides. Superficial reflexes absent. Incontinence of urine and faeces. Respiration rapid (36 per minute). Pulse 128. Temperature 102.5° F. Urine acid, specific gravity 1020; no albumen; chlorides normal. No abnormal signs in chest and abdomen. Lumbar puncture was performed on the day after admission, and one and a half test-tube full (about 30 c.cm.) of turbid flaky fluid was withdrawn. The patient became progressively worse, and died comatose two days after admission with temperature 100.6° F. and respirations 48. The bowels had acted normally once or twice a day while the child was in hospital, and no further vomiting had occurred.

Post-mortem Examination.

This was performed nine and a half hours after death. Fairly nourished body. Rigor mortis present.

Meninges.—Some excess of turbid fluid at the base of the brain. The membranes generally are hyperaemic and "sticky" in appearance. No exudate or tubercles on the convexity. A thick layer of fibrino-purulent exudate is present on the inferior surface of the pons. Similar exudate in rather less amount is present in the interpeduncular space. The superior surface of the medulla is adherent to the middle lobe of the cerebellum. There is also similar exudate to that at the base around the vessels in the pia mater deep in the Sylvian fissures. A careful search reveals no tubercles anywhere on the vessels of the meninges or in the exudate. Brain 47 oz., hyperaemic and rather soft. Moderate dilatation of the ventricles, which contain excess of slightly turbid fluid. No tubercles are visible in the choroid plexuses, whichappear normal. The brain is not otherwise abnormal. There are no tuberculous foci in it.

Spinal Cord.—The spinal meninges contain a slight excess of turbid fluid, especially in the lumbar region. The cord itself looks oedematous but otherwise normal. No tubercles are visible in the spinal meninges and there is no fibrinous or purulent exudate thereon.

Thorax.—Pleurae normal. Lungs (right 10 oz., left 8 oz.) are congested. There are no signs of miliary or other form of tuberculosis in them. Around the left main bronchus is an actively caseating tuberculous gland, the size of a Barcelona nut. Its capsule appears intact.

Larynx, trachea, and thyroid, normal.

Pericardium normal; heart 6 oz., normal, except for moderate dilatation of the right ventricle and tricuspid orifice.

Abdomen.—Peritoneum and mesenteric glands normal; no tubercle. Alimentary tract normal; no ulceration or tubercles. Liver and kidneys normal. Gall bladder and ducts normal. Pancreas congested. Spleen 2 oz., congested; consistence normal. Suprarenals normal. Bladder normal, distended; no obstruction to outflow of urine.

No surgical tuberculosis present. All the organs were searched for miliary tubercles, but none were seen.

Microscopical Examination.

Sections of the cortex of the brain were made, showing also the meninges and exudate. Acute inflammation of the meninges and superficial brain substance was present. The meningeal exudate consisted of fibrin and round cells. The cells were mainly large and small lymphocytes, but some polymorphonuclear leucocytes were present. The cells were not spread uniformly throughout the fibrinous mass; in some parts they were thickly aggregated in large irregular clumps, while in other parts there was fibrin with comparatively few cells scattered in it.

All the arteries were surrounded by collections of round cells, and the arterial walls themselves were infiltrated with leucocytes, but no definite endarteritis was present. Many of the cells of the exudate took the stain badly, and appeared necrotic, but nothing suggesting miliary tubercle formation was seen; there were no giant cells and no epithelioid cells seen in the sections examined. Similar sections stained by the Ziehl-Neelsen method showed the presence of a considerable number of tubercle bacilli scattered throughout the cortex and exudate (each field containing 12 to 20 bacilli).

The organisms were especially numerous in the close vicinity of the blood vessels.

The examination of the cerebro-spinal fluid removed a few hours before death (the report on which was not received until after the necropsy) showed that the cells were chiefly polymorphonuclear leucocytes, there being only a few lymphocytes. A considerable number of tubercle bacilli were found in the fluid after centrifugalization, and no other organism was present. The lungs and other organs were unfortunately not examined for isolated tubercle bacilli.

The unusual features of the case are: (1) The presence of tuberculous meningitis with much fibrino-purulent exudate at the base of the brain without any miliary tubercle formation; (2) the absence of miliary tuberculosis of the lungs and other organs; and (3) the great predominance of polymorphonuclear leucocytes over lymphocytes in the cerebro-spinal fluid.

The child only lived two days after admission to hospital, but a diagnosis of tuberculous meningitis was made from the history and physical signs. At the necropsy, however, doubt was thrown on this diagnosis, as, although there was an actively caseating bronchial gland to serve as a primary focus, there was no generalized miliary tuberculosis and no tubercles in the meninges, which, moreover, showed much thick fibrino-purulent exudate, mainly posterior-basal in distribution. On the other hand, the general "stickiness" of the meninges and the presence of some exudate around the vessels in the Sylvian fissures favoured the diagnosis of tuberculous meningitis. The doubt as to the diagnosis was accentuated by the cytological examination of the cerebro-spinal fluid. The bacteriological examination of the centrifugalized fluid and the sections of cerebral cortex settled the question.

The presence in the sections of cortex and meninges of "diffuse leucocytic infiltration, predominantly perivascular," as described by Delille, is noteworthy, as also is the presence of inflammatory cells scattered diffusely throughout the walls of the arteries. There was, however, no obvious tendency to the formation of circumscribed nodules consisting only of round cells without giant cells or epithelioid cells, such as is sometimes seen in miliary tubercles in the lungs and elsewhere in the more acute cases of generalized tuberculosis.

A case reported to the Société Médicale des Hôpitaux de Paris by MM. Sireday and Tinel[1] is similar to the present case in that there was tuberculous meningitis without tubercles, and microscopically there were numerous tubercle bacilli with cellular exudate, "chiefly perivascular," but in their case there was little fibrinous or purulent exudate in the meninges, and "diffuse tuberculous granulations" were found in the lungs. Further, the cerebro-spinal fluid contained chiefly lymphocytes, as is usual in cases of tuberculous inflammation. The

absence of miliary tubercles in the meninges in tuberculous meningitis, though a recognized pathological occurrence, is comparatively infrequent, and especially so when associated with their absence also from the lungs and other organs; and the predominance of polymorphonuclear cells in the cerebro-spinal fluid is certainly rare in tuberculosis.

With regard to the reason why tuberculous granulations are not always found in cases of generalized tuberculosis, it may be considered that while general tuberculous infection usually takes the form of a *pyaemia* it may occasionally be only a *septicaemia*, and that the primary tuberculous focus in the first case discharges into the circulation clumps of bacilli with tissue débris, and that these clumps, becoming impacted in the smallest arterioles, cause the formation of miliary tuberculous granulations or "tuberculous pyaemic abscesses" around the blocked vessels, but that in the second case separate bacilli only are discharged into the circulation in considerable numbers, and that these isolated bacilli do not get lodged in the small vessels. The diffuse leucocytic infiltration of the cerebral cortex and the cellulo-fibrinous inflammation of the meninges may be explained as being the result of the irritation of the toxins, and of the bacilli, which have found their way from the blood vessels into the cortical substance and into the cellular tissues of the meninges, these parts especially easily reacting to the tubercle bacillus.

I wish to express my thanks to Dr. H. D. Rolleston for permission to publish this case, and to Dr. Chas. Slater for furnishing the report of the bacteriological examination.

REFERENCE.

1 *Lancet*, April 13th, 1907.

OBSERVATIONS ON AN OUTBREAK OF MEAT POISONING AT LIMERICK.

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IN view of the economic and hygienic importance of the subject of food poisoning, I have thought it well to bring the leading facts revealed by my study of this disastrous outbreak (73 cases with 9 deaths) before a wider circle of the professional public than could be reached by the *Journal of Pathology and Bacteriology*, in which the fuller communication which I have prepared on the subject will appear.

I.—THE OCCURRENCE.

On Tuesday, November 3rd, 1908, at 6 p.m., an alarming attack of illness broke out amongst the inmates of an industrial school for girls at Limerick. The symptoms, ushered in by severe headache, were those of acute gastro-intestinal disturbance—nausea, abdominal pain, uncontrollable vomiting and diarrhoea accompanied by tenesmus, and followed, in the severer cases, by the most profound collapse. By midnight, some twenty-eight of the girls were stricken down, and on the following day nearly fifty more became affected, though for the most part not so severely. The first death (that of S. K., aged 13) took place at 7 on the Wednesday morning, after little more than twelve hours' illness. Another child succumbed at 9 that night. On the following day, Thursday the 5th, no fewer than 7 more deaths occurred in rapid succession, the last (that of M. K., aged 13) ensuing at 6.35 p.m., about forty-eight hours after the commencement of the outbreak.

II.—CLASSIFICATION OF THOSE AFFECTED.

The pupils numbered 197, and were divided into four classes. The first or senior class comprised 67 girls between the ages of 13 and 17, and on it fell the brunt of the attack, with 55 illnesses and 8 deaths. The second class, 48 in number (ages between 10 and 13), yielded 10 cases with 1 death. In the third class there were 51 little girls between 7 and 10 years old, of whom 8 sickened—5 decidedly, 3 somewhat doubtfully. The fourth class comprised "babies" between the ages of 3 and 7. There were 31 of these, none of whom took ill. Nor were there any cases amongst the Sisterhood in charge, teachers in training, or servants. Of the 73 cases, 9 died as above stated, and the remainder rapidly recovered, after several days' mild fever, accompanied in several cases by herpes labialis, in others by desquamation of the cuticle, more especially of the fingers. There was no rash. All the recovered cases that were tested (over 20) had agglutinins in their serum, specific for the causative organism.

III.—PATHOLOGICAL ANATOMY.

Assisted by Drs. P. F. Graham (the medical attendant to the institution) and Dr. J. F. Shanahan, I performed, on November 6th, the autopsy of 3 of the cases—namely, S. K., aged 13, the first to die; L. O'D., aged 12½, the only second-class girl who succumbed; and M. K., aged 13, the last to die. The notes were kindly taken by Captain Elsner, R.A.M.C. Eliminating all non-essential details, the following were the chief findings:

Alimentary Canal.—Empty throughout, save for a little creamy fluid; not inflamed, nor ulcerated, nor even hyperaemic, save for a few streaks of capillary engorgement on the gastric mucosa. The mucous membrane of stomach and intestines presented a peculiar pale, swollen, velvety aspect, with here and there patches of white, prominent granules, each as large as a pin's head, projecting under the mucous membrane. They consisted of nodules of tumid lymphoid tissue. Peyer's patches were not tumefied.

The *liver* showed characteristic though not exactly obvious changes in all 3 cases. It was large, soft, hyperaemic, and sprinkled throughout with little, indistinct, pale-yellowish areas or spots. Microscopic examination of the fixed and hardened preparation revealed the most intense fatty degeneration of the liver cells at these places. In one case (L. O'D.) there were areas of haemorrhagic breakdown as big as a pea. The spleen showed no constant change. The kidneys were in a state of cloudy swelling.

The *cardio-vascular system* showed but little change. Endocardium and aortic intima not stained. The volume of the blood was much diminished and the clots were tarry in character. The *lungs* showed only some scattered patches of hyperaemia. The anatomical diagnosis was *cholera nostras* due to food poisoning.

IV.—BACTERIOLOGY.

From practically all of the viscera examined (for details, I would refer to the complete paper), as well as from the discharges obtained from the recovering cases, I succeeded in isolating, either by direct culture or after preliminary enrichment in malachite-green broth, a typical strain of the *Bacillus enteritidis* of Gaertner. The medium used for plating out was Drigalski's litmus-nutrose-lactose-crystal-violet-agar. On it the Gaertner colonies were readily distinguishable by their bluish translucent appearance, vigorous growth, and marked tendency to become confluent. The same colonies were obtained from all three cases examined *post mortem*. Avoiding technical details, I will merely say that morphologically this organism is identical with the typhoid bacillus, and is quite as actively motile. It differs from the typhoid bacillus *inter alia*, in its more rapid growth on gelatine, its ability to clear up milk, and to ferment glucose with formation of acid and gas. It differs from an actively motile strain of *B. coli* in the delicate character of its gelatine colonies, its inability to coagulate milk, to ferment lactose, and to form indol. I could find no constant morphological or cultural difference between this strain of Gaertner's bacillus and the paratyphoid B. bacillus (two strains isolated by myself from Irish cases). Neither does it seem to differ morphologically or culturally from the bacillus of Ratin.

Serologically, however, it stands nearer to typhoid than to paratyphoid B., and by comparative agglutination tests I find it to belong to the true Gaertner type (that responsible for the outbreaks of food poisoning at Rumfleth, Haustadt, Morseele, etc., described by van Ermengem and his pupils) and not to the morphologically identical, but serologically distinct, "Flügge-Kaensche" or "Aertryke" type.

I reserve details as to its behaviour on the various coloured and other test media for the complete paper. As regards its pathogenicity for animals, the Limerick strain is very virulent for rats and mice, setting up in mice a fatal epizootic disorder accompanied by yellowish mucoid

or honey-like stools (? mouse-typhoid). Guinea-pigs appear to be immune, at any rate to infection per os, as are also dogs. Rabbits are highly susceptible, not merely to fresh but to old heated cultures administered subcutaneously. A calf, aged 4 months, was killed in seven hours by an injection of 20 c.cm. culture fluid into the jugular vein. The symptoms were severe dyspnoea coming on in a couple of hours, followed by purging and collapse. I have to thank Professor A. E. Mettam, B.Sc., Principal of the Royal Veterinary College of Ireland, for giving the injection, having the animal watched by one of his pupils, performing the autopsy for me, and giving me facilities for the bacteriological study of the cadaver.

V.—Mode of Infection.

From the first, suspicion was riveted on a certain stew which formed the dinner of the first or senior class *only* on Tuesday, November 3rd, at noon. Out of 55 girls belonging to the first class who partook of this stew, 53 sickened and 8 died. The serum of the survivors gave positive agglutination reactions with the strain of Gaertner's bacillus isolated. The serum of two of the first class who had their meal in another room, off different food, and who were not ill, gave negative results. It was found afterwards that one of the two girls who partook of the stew and were *not* ill, consumed only the gravy and potatoes. Their blood gave a distinct positive reaction with the specific bacillus, showing that infection—though unaccompanied by symptoms—must have taken place.

The peccant element in the stew was clearly proved to have been the remains of part of a fore-quarter of beef weighing 38 lbs., which was brought in on Saturday, October 24th. Part of this was cooked and eaten on the following Tuesday, and the remainder was roasted on the Thursday (27th). It was three or four pounds left over from this joint, and allowed to lie in the larder from Thursday till the following Tuesday, that caused the outbreak. This stale piece of roast beef was cut up and added to the stew which formed the dinner of 55 first-class pupils on that day. But how did some second and third-class girls become affected? Subsequent inquiry revealed the fact that four girls (members of the second class) had exchanged their own repast for some of the cold beef in question. All became very ill, and one (L. O'D.) died. Six other girls of this class took cold bacon, with or without a little of the beef. All of these were slightly ill. The bacon is stated to have lain in the larder on the same dish as the beef, and no doubt became infected by contact. The members of the third class to the number of 51 escaped with the exception of 8, only 5 of whom were at all seriously ill, the slight malaise from which the other three complained being ascribed—and no doubt correctly so—to a smart dose of castor oil. Of the 5 who were really ill, 4 received some of the fatal stew from the waitresses (senior girls) who shared their own repast with the little ones. The remaining third-class girl who was ill (A. F.) was found to have occupied a seat at the second-class table, and to have partaken of the cold beef and bacon that were responsible for the illness of members of that class.

VI.—History of the Beef.

The animal from the carcass of which was cut the piece that occasioned the disaster was described at the inquest as a young Kerry heifer, purchased on June 29th by a certain butcher, who would seem to have attempted, but without success, to fatten it. This butcher seems to have killed the animal on his own premises, on or before October 19th, when he disposed of part of the carcass to another butcher who was the regular supplier of the institution. The contract prices paid by the institution for beef and mutton were 8d. per lb. for the "prime" cuts, and 5d. for the other parts. This piece was sent in at 5d. per lb. by the contractor. No reliable information was obtainable at the inquest as to the condition of the calf at, or shortly prior to, slaughter. From the low price at which the meat was sold to the contractor—3d. per lb.—it seems fair to conclude that the meat could not have been regarded as of "prime" quality. Moreover, the first butcher would appear to have sold the meat at a sacrifice. Two features typical of such occurrences were therefore present in the case. The meat was purchased ready killed by the contractor, and at an unusually low price. The fate of the remainder of the carcass was not satisfactorily traced at the inquest. The piece sent to the school on October 24th was part of the fore-quarter, weighing some 38 lb. All of this save 12 lb. was cooked and eaten on Tuesday, October 27th, without ill effect. A piece of "ribs" weighing 12 lb. was not cooked, however, till Thursday, October 29th, when it was roasted and partaken of by the teachers without ill effects. Of this joint, about 3 or 4 lb. were left over from the Thursday's dinner, and kept on a dish (together with a piece of bacon) in the larder till the following Tuesday, November 3rd, when it was cut up, most of it put in the stew, and the remainder served out, with or without cold bacon, to girls of the second class. The stew, as already stated, formed the dinner of the first class, but was also obtained by some members of the third class. All who partook of it became ill, with two exceptions, and *their* serum proved to contain agglutinins specific for the causative organism. All who partook of the beef, as such, also became ill, and also some of those who partook of bacon that had lain in contact with it. The bone of the beef was put in the soup for the "baby" class, and seems to have been innocuous, doubtless because it was thoroughly boiled. As for the stew, that was expressly stated by the cook *not to have been boiled*, but only warmed up. It would have been most interesting to have examined the beef, but unfortunately when I arrived on the scene not a scrap remained. Despite the fact that it must have been very stale, it does not seem to have given rise to observation with regard to odour, taste, or appearance. Experiments which I carried out by inoculating cold beef with the strain of Gaertner's bacillus isolated from these cases showed that the meat became rapidly and completely pervaded with the organism, and yet exhibited no perceptible alteration. The bacillus would actually seem to have a special predilection for muscular tissue, for I have never failed to isolate it from the muscles of animals that had succumbed to experimental infection with it.

In the stew there was also mutton, but for various reasons, needless to detail here, that could not have been the *fons et origo mali*. Moreover, a large piece sent up to me for examination failed to yield Gaertner's bacillus, even by malachite-green enrichment.

VII.—Summary and Conclusions.

This severe outbreak of meat poisoning was caused partly by intoxication (cf. the short incubation period), and partly by infection (cf. the cultivation of the organism from the three fatal and two of the recovering cases). The causal micro-organism was the genuine *Bacillus enteritidis* of Gaertner, which must have been conveyed to the sufferers in the beef; and from the history it seems probable that the calf was sickly, and already harboured the bacillus at the time of slaughter. The escape of those who partook of portion of the same carcass on October 27th and 29th may be accounted for either by unequal distribution of the virus, or by thorough cooking which destroyed it. Some of the infective material must, however, have escaped the roasting of the 29th, and, multiplying rapidly, have rendered the whole piece intensely toxic and infective during the five days that elapsed before the fatal Tuesday when it was finally consumed. The practical lesson to be derived from the observation of this occurrence—the most disastrous of its kind hitherto recorded, so far as the writer knows—is twofold. First, it indicates the need there is for the abolition of the private slaughter-house, and for the inspection of all animals used for human food, both before, during, and after slaughter; secondly, it emphasizes the danger arising from the use of old stale scraps of meat, and especially of beef. If, on economic grounds, such left-over pieces *must* be used up, the only way of avoiding or diminishing the danger would seem to be very thorough and prolonged boiling. Ordinary examination of such meat may fail to discover any grounds for suspicion.

In the foregoing description I have purposely omitted many interesting points of detail, such as the agglutination reactions of the patients' serum, the distribution of the bacillus in the bodies of the victims, etc. These are reserved for the full paper.

In conclusion, I have to express my heartfelt thanks to the Sisterhood in charge of the institution for the full and complete information and other assistance which they

cheerfully afforded me during my investigation of the outbreak. My thanks are also due to Dr. P. F. Graham, physician to the institution, for his assistance and the trouble he took in collecting the patients' serum. I desire also to thank Dr. Shanahan for helping me at the autopsies and in other ways.

THE SCIENCE COMMITTEE

OF THE

British Medical Association.

REPORT CXIII.

THE CONDITION OF THE BLOOD IN EXPERIMENTAL RICKETS.*

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CONCERNING the condition of the blood in rickets there is much diversity of opinion. The majority of authors consider that there is invariably a certain degree of anaemia. Ewing[1] and Cabot,[2] in their textbooks on haematology, say that there is always a certain degree of anaemia proportionate to the severity of the disease. Cabot, in addition, mentions that examples of polychromatophilia, myelocytes, and nucleated red blood corpuscles are not infrequently observed. Holt,[3] Cheadle,[4] and Ashby,[5] in their writings on rickets, express practically the same opinion. Not one of these authors, however, quotes any specific example, but merely the conclusions of other observers. Hutchison,[6] on the other hand, states that severe rickets is often accompanied by no appreciable degree of anaemia; and Pfaundler and Schlossmann[7] say that in rickets there is nothing characteristic of the blood.

Considering the frequency with which rickets occurs, the blood picture has comparatively seldom been the subject of study. In the literature I have only been able to find three papers based on anything like extensive observations.

Morse[8] in 1897 reported the result of an investigation into the condition of the blood in 20 cases of active and uncomplicated rickets occurring in children between the ages of 7 months and 2 years. He found the percentage of haemoglobin (as estimated by the apparatus of von Fleischl) to vary between 48 and 77, the red blood corpuscles to vary between 3,508,000 and 5,528,000 per c.mm., and the leucocytes between 5,500 and 18,800 per c.mm. He observed nucleated red cells in three of the cases, all of which presented some enlargement of the spleen, and in some of these, in which the spleen was greatly enlarged, nucleated red cells, both megaloblasts and normoblasts, were very numerous. In nearly all the cases mention is made of some variation in the size of the red cells, and occasionally poikilocytosis was observed. Morse concludes from his observations that most cases of rickets present some anaemia, which, as a rule, varies with the severity of the disease, and that there may or may not be a leucocytosis.

Felsenthal (quoted by Morse[8]) investigated 12 cases of rickets, varying in age from 9 months to 2 years. Three of the patients were very markedly rachitic and had large spleens. He got practically the same result in all the 12 cases. The red blood corpuscles were not decreased in number, or only to a very slight extent, but the haemoglobin was always diminished. Nucleated red cells only occurred in the most severe cases.

Esser,[9] in a recent paper on the etiology of rickets, discusses the condition of the blood—at least, so far as the number and character of the leucocytes are concerned. He asserts that there is almost invariably—at least, in the early stages—a marked leucocytosis, amounting in some instances to 30,000 per c.mm., and that the nuclei of the polymorphonuclear leucocytes are more lobulated than normal. He does not, however, give any table of his results, nor does he make any mention of the percentage of haemoglobin or number of red blood corpuscles.

According to Cabot,[10] Hock and Schlesinger found that in a considerable number of cases of rickets, with and without splenic enlargement, the number of red blood cells per c.mm. was 2,500,000.

As for the rest of the literature, it consists of reports of isolated, or at most two, examples of rickets examined by the one author. Not infrequently, too, some mention is made of splenic enlargement, and in not a few the blood picture was similar to that found in "splenic anaemia of infancy," so that these results are of very doubtful value. More especially is this the case when one considers that the degree of splenic enlargement in splenic anaemia bears no definite relation to the severity of the anaemia, and also that it is very doubtful, in view of recent observations,[13] if uncomplicated rickets is accompanied by any degree of splenic enlargement; and, finally, as Starck[11] has shown, that enlargement of the spleen is as common in non-rachitic as rachitic children.

Moreover, much of the diversity of opinion regarding the relationship of rickets to von Jaksch's anaemia is due, in my opinion, to the want of exact knowledge regarding the blood picture in uncomplicated rickets.

Owing to this scarcity of information regarding the condition of the blood in active and uncomplicated rickets I was led to conduct an investigation into the subject both from the clinical and experimental aspect. In this paper I intend to deal chiefly with my experimental results, but it will be advisable to give in addition a brief summary of the results obtained in the case of spontaneous rickets in children.

I examined 30 cases of active and uncomplicated rickets in children between the ages of 12 and 42 months. In order to control these observations I also investigated the blood of 12 children, who to all external appearances were quite healthy, and who most certainly did not present the slightest rachitic manifestation, and who, it may also be stated, belonged to the same class of society. In only 9 of the 30 rachitic cases was there any degree of anaemia. In 2 of these the amount of haemoglobin was only 5 per cent. below the accepted average, and the red cells in no instance were less than 4,100,000 per c.mm. The majority of the cases, on the other hand, gave notably high blood estimations, so far as the amount of haemoglobin and number of red cells were concerned. For better comparison the cases were divided into five groups, each group comprising an age-period of six months, and the average of each group compared with the average of the controls and the reputed average of authors for corresponding ages. For each age-period the average amount of haemoglobin and number of red cells was in excess of the reputed average, and also of the controls, excepting in one series composed of children between the ages of 18 and 24 months, where the red cells, though still above the normal, were some 800,000 per c.mm. below the average number as found in the controls. Nucleated red corpuscles were exceedingly rare, only being discovered on one occasion, and myelocytes were notable by their absence. In only 2 of these cases was there an unequivocal leucocytosis, the white cells numbering 20,000 and 30,000 per c.mm. The child in one of these cases had been suffering for some days prior to the examination from diarrhoea. Of the other 28 cases, 9 gave a normal or subnormal estimation, and in 19 the leucocytes were moderately increased in number, the maximum being 19,000 per c.mm. Differential counts failed to reveal anything characteristic.

As uncomplicated rickets in children is comparatively rare, I considered it important to corroborate the clinical findings with observations in experimental rickets.

Rickets was induced experimentally in puppies, and periodic examinations of the blood were made before and after the development of the disease. When the rachitic manifestations became very marked the animals were killed, and the histology of the haematopoietic organs studied. In the results recounted below, however, I have not discussed the histological findings in these organs in any detail, as I intend in a later communication to deal with that aspect of the subject.

The blood examinations were always made at about the same time of the day, between 3 and 5 p.m. The sample of blood was taken from a vein of the ear, after the part had been shaved, the haemoglobin estimated by Gowers's haemoglobinometer, and enumerations of the red and white cells made with the Thoma-Leitz haemocytometer. Gowers's solution was used as the diluent for the red cells, and a 3 per cent. solution of acetic acid, tinted with methylene blue, for the white cells, the dilutions being 1 in 100 or 1 in 200 and 1 in 10 respectively. Films were also made and stained with Jenner's fluid, and a differential

* From the Pathological and Physiological Laboratories of the University of Glasgow.

count of 400 to 800 leucocytes made. Films were also at first stained with Ehrlich's triacid fluid, but as it entirely failed to reveal any neutrophile granulations its use was early discarded. The best results were obtained in films stained for two or three minutes with undiluted Jenner's fluid, and then for about ten minutes with the diluted stain and thereafter washed thoroughly. Invariably the eosinophile granulations stained well, but the demonstration of the neutrophile granulations left much to be desired. They always appeared faint and very scanty, but in undoubted polymorphs were sufficiently definite to enable a diagnosis to be made. In no mononuclear cells, either in the blood or marrow, were neutrophile granules detected, so that it was found impossible to distinguish between myelocytes and hyaline cells. This absence of neutrophile granulations in the myelocytes of dog's blood I find is also mentioned by D. Noël Paton[12] in his work on digestion leucocytosis.

In the results of the differential counts I have classified the leucocytes under four headings:

1. *Neutrophile Polymorphonuclear Leucocytes.*—These cells are characterized by a variously-shaped and darkly-staining nucleus, and by the presence of faintly-staining and scanty neutrophile granulations throughout the protoplasm.

2. *Eosinophile Polymorphonuclear Leucocytes.*—These cells only differ from the preceding in the type of granulation, which is large, spherical, and markedly oxyphile in its affinity for dyes.

3. *Lymphocytes.*—Under this heading I have classified all cells, irrespective of their size, which have a relatively faintly-staining circular, oval, or slightly-indented nucleus surrounded by a relatively small amount of markedly basophile protoplasm.

4. *Hyaline and Transitional Cells.*—This class includes the large mononuclears, with fairly abundant clear protoplasm, and cells, which seem exactly similar in type, excepting for the markedly indented nucleus.

EXPERIMENT I.

Male pup. Born May 11th, 1906. This animal was weaned at the age of 4 weeks, and thereafter fed on porridge and milk and subjected to modified confinement. Rachitic manifestations were apparent on July 14th. The pup steadily increased in weight till July 31st, when it weighed 6,997 grams, but from that date until August 23rd it lost 420 grams. The following charts (Nos. 1 and 2) show graphically the results of the weekly blood examinations.

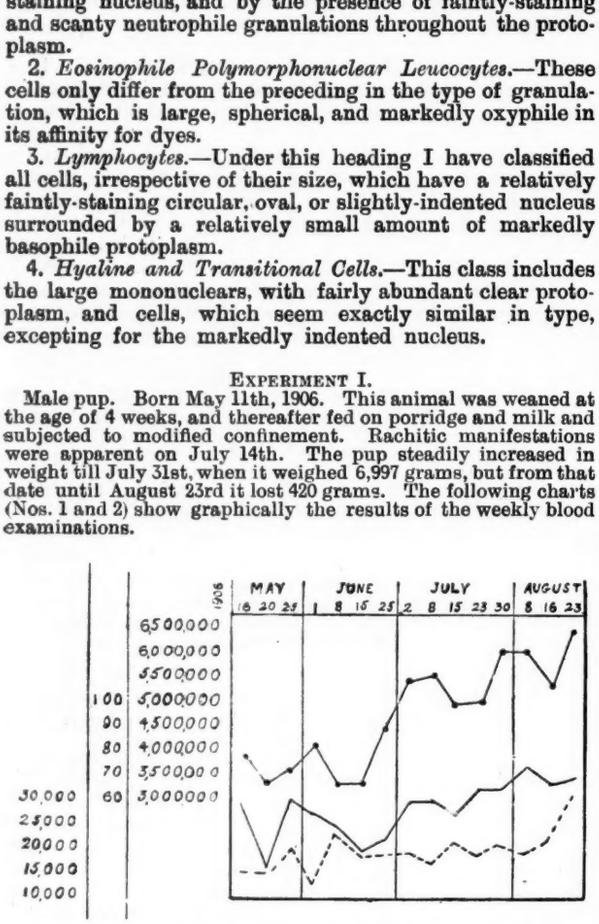

Chart 1: ·—·— Red cells; —— haemoglobin; - - - - - leucocytes.

It will be seen that in spite of the development of severe rickets no anaemia supervened, but that the blood continued to improve steadily in quality. Nucleated red blood corpuscles were met with at almost every examination, but they steadily decreased in number from 1 in 20 leucocytes during the first week to 1 in 600 on the second last day of life. The leucocytes remained fairly steady throughout the development of the disease until just before death, five weeks after definite rachitic manifestations were observed, when there appeared a moderate leucocytosis. Chart No. 2, comprising the absolute counts of the different varieties of leucocytes, shows that the variation in the leucocytic picture depended on the polymorphs and lymphocytes, the other varieties remaining fairly constant. The polymorphs varied between 8,000 and 17,000 per c.mm. until the final observation, when they rose to 26,000 per c.mm. As regards the lymphocytes there was a gradual rise until the animal was 5 weeks old, after which they diminished in number, and they continued to be scanty during the development of rickets, but during the last two weeks of life they increased again.

The animal was killed on August 23rd. Weight 6,577 grams. Bones showed marked rachitic changes. Heart and lungs were normal. The liver, which weighed 265 grams, was passively congested and the seat of fatty infiltration. The spleen weighed 44.7 grams, and, excepting some passive congestion, seemed normal. The thymus gland weighed 3.9 grams. Sections of the femur marrow, which was unduly abundant, showed it to be slightly more fatty than normal.

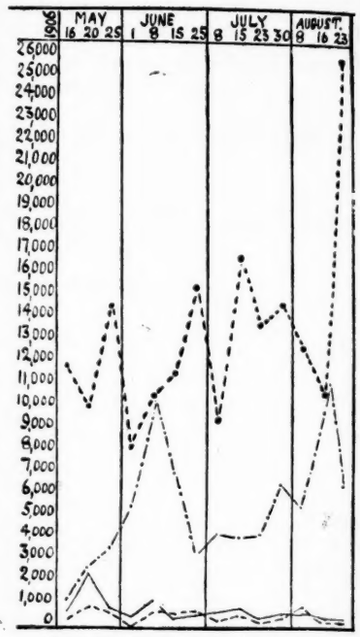

Chart 2.—Showing absolute number per c.mm. of the different varieties of leucocytes. ------ Neutrophile polymorphonuclears; — — — — eosinophile polymorphonuclears; —·—·— lymphocytes; ——— hyalines and transitionals.

EXPERIMENT II.

Male pup, born May 11th, 1906. It was weaned at the age of 4 weeks, and thereafter treated by modified confinement and fed on porridge and milk. It showed undoubted rachitic symptoms on July 14th, but with exercise these in great part disappeared, only to reappear on again being confined. It steadily increased in weight till July 31st, after which it lost during four weeks 453 grams.

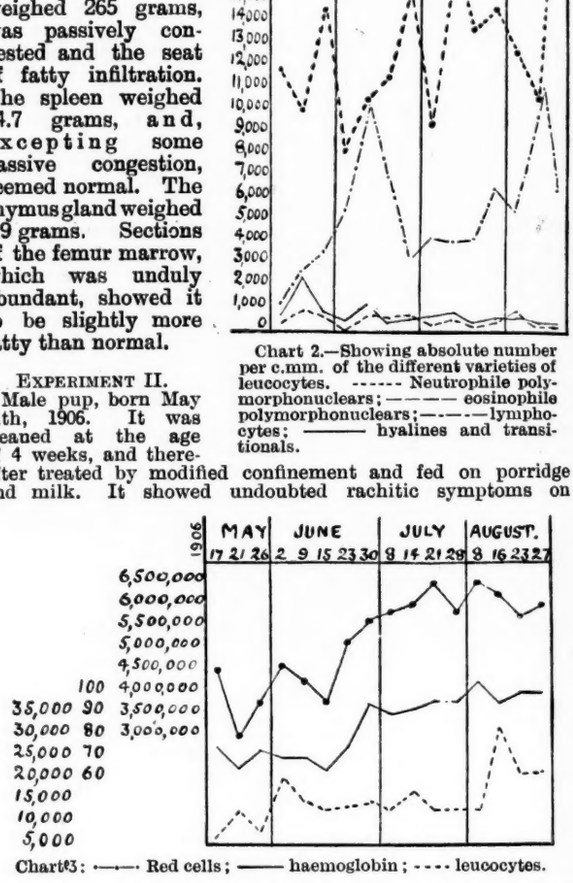

Chart 3: ·—·— Red cells; —— haemoglobin; - - - - leucocytes.

It will be seen from the charts (Nos. 3 and 4) that in this case also there was not the slightest evidence of anaemia. The leucocytes, too, remained fairly constant until three weeks before death, when there was a temporary leucocytosis, due both to a polymorphonuclear and a lymphocytic increase. There was also, as in the former experiment, a gradual rise in the number of lymphocytes from birth,

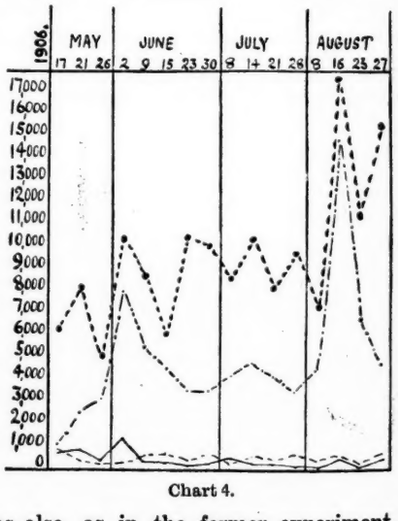

Chart 4.

with thereafter a fall, which persisted until the final rise three weeks before death.

Killed August 28th. Weight, 4,536 grams. Bones showed marked rachitic changes. Heart and lungs were normal. The liver weighed 155.9 grams, and was fatty. The spleen weighed 18.1 grams, and was slightly fibrosed. The thymus weighed 12.1 grams. The axillary and mesenteric lymphatic glands were enlarged, and on minute examination were found to show some lymphatic hypertrophy. The femur marrow was more fatty and more abundant than normally.

EXPERIMENT III.

Female pup, born May 11th, 1906, and treated similarly to animal in Experiment I. This pup was distinctly rachitic by July 14th, and for the last twelve days of life could not walk. She increased steadily in weight until within two and a half weeks of death, during which time she lost 453 grams.

In this case, as in the two preceding experiments, the blood continued after the development of the disease to improve in quality (during the final two weeks of life the red cells averaged 6,400,000, and the haemoglobin 100 per cent.), and, unless on the occasion of the final examination (two days before death), there was no increase in the number of leucocytes; in fact, there seemed to develop a leucopenia after the onset of the rachitic manifestations. During the last week of life the lymphocytes increased enormously, rising from 3,000 to 20,000 per c.mm., but otherwise the differential counts revealed nothing characteristic. Nucleated red blood corpuscles varied from 1 in 25 leucocytes on first examination, when the animal was four days old, to 1 in 500 leucocytes during the last week of life.

Killed August 17th. Weight, 4,309 grams. The bones showed marked rachitic changes. Heart and lungs were healthy. The liver, which weighed 198.4 grams, was fatty, and the spleen, which weighed 8 grams, showed nothing abnormal on microscopic examination. The thymus weighed 3.9 grams. The lymphatic glands were normal. The marrow presented a slight degree of leucoblastic hyperplasia.

EXPERIMENT IV.

Female pup, born March 7th, 1907, and kept under observation from the age of 5 weeks. It was fed on porridge and milk and treated by confinement. Rachitic manifestations were apparent about May 14th. This pup increased steadily in weight till within two weeks of death, after which it lost 652 grams.

In this case there was during the last week of life a fall in the number of red cells, but not sufficient to be described as an anaemia, especially as the haemoglobin still maintained its former level (see Chart 5). The leucocytes throughout remained fairly steady. The leucocytic picture shows a tendency towards a gradual rise in the proportion of the polymorphs, with a corresponding fall in the lymphocytes after the development of rickets (see Chart 6). On May 7th there occurred a marked rise in the number of large mononuclears and transitionals, but with this exception the charts do not present anything abnormal. Nucleated red cells were observed on all occasions except the last three, and varied between 3 in 400 leucocytes on the day of the second examination and 1 in 400 on May 24th, fourteen days before death.

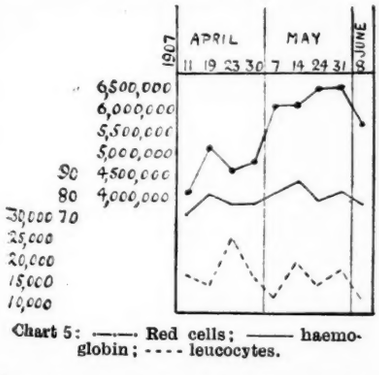

Chart 5: —·— Red cells; —— haemoglobin; ---- leucocytes.

Killed June 9th, 1907. Weight 3,230 grams. The bones showed marked rachitic changes. The heart and lungs were normal. The liver weighed 170 grams; it was markedly fatty, and presented some passive congestion. The spleen, which weighed 14 grams, was congested. The thymus, whose weight was 6.5 grams, was markedly atrophied, the follicles being widely separated and much diminished in size; relatively the corpuscles of Hassall were increased in number. The femur marrow, which was more abundant than normally, was gelatinous in type, and microscopic examination revealed extensive myxomatous degeneration.

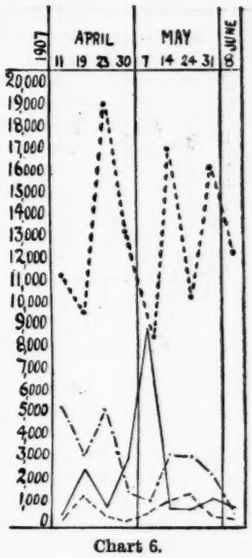

Chart 6.

EXPERIMENT V.

Female pup, born March 7th, 1907, of same litter as animal in previous experiment, and treated in a similar fashion. It showed signs of rickets on May 14th, and steadily increased in weight until within three weeks of death. During the last three weeks it lost in weight 793 grams.

The condition of the blood in this case simulated very closely indeed that found in Experiment IV. There developed during the last three weeks of life a slight degree of anaemia, the red cells falling from 6,270,000 to 5,100,000 per c.mm., and the haemoglobin declining from 85 to 75 per cent. A leucopenia, which appeared before the clinical manifestations of rickets, was noted during the last six weeks of life. The differential counts revealed that the leucopenia was mainly due to a diminution of the lymphocytes, the number of neutrophile polymorphonuclears, on the other hand, continuing throughout fairly constant. Nucleated red cells were observed on almost all occasions, and varied between 2 in 400 and 1 in 400 leucocytes.

Killed June 13th, 1907. Weight 2,568 grams. The bones showed marked rachitic changes. Heart normal. Both lungs showed patches of bronchopneumonia. The liver (weight 113 grams) showed numerous polymorphonuclear leucocytes along the portal tracts. The spleen, which weighed 9.5 grams, presented nothing abnormal, excepting for some diminution in the size of the Malpighian bodies. The thymus gland appeared unusually small. The mesenteric and axillary glands were hypertrophied; the lymph sinuses contained many catarrhal cells with blood pigment. The femur marrow presented a slight degree of leucoblastic hyperplasia.

EXPERIMENT VI.

Female pup, born March 7th, 1907, of same litter as two previous animals, and treated in a similar fashion. This animal was undoubtedly rachitic on May 14th. It steadily increased in weight till within seven days of death, but thereafter it lost 595 grams.

In this case also there is a tendency towards the development of anaemia after the appearance of the rachitic manifestations, but not what one would call severe (see Chart 7). There was a leucocytosis, which developed three weeks before death and persisted until the end. This leucocytosis, it will be seen, was entirely due to an increase in the neutrophile polymorphs (see Chart 8). It is most probable that the leucocytosis was due to bronchopneumonia, from which the animal died. Two nucleated red corpuscles were observed on first examination, while counting 500 leucocytes, but they rapidly diminished in number, and were entirely absent on the last three examinations.

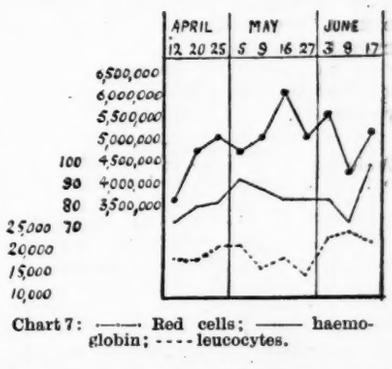

Chart 7: —·— Red cells; —— haemoglobin; ---- leucocytes.

The pup died suddenly on June 21st. Weight, 2,948 grams. The bones showed marked rachitic changes. The lungs were the seat of bronchitis with patches of bronchopneumonia. The liver, which weighed 212.6 grams, was congested and presented a slight degree of general

fibrosis. The spleen weighed 14.17 grams; the Malpighian bodies were small, and throughout the pulp were many endothelial cells, containing blood pigment.

No thymus gland was detected. The femur marrow showed extensive myxomatous degeneration.

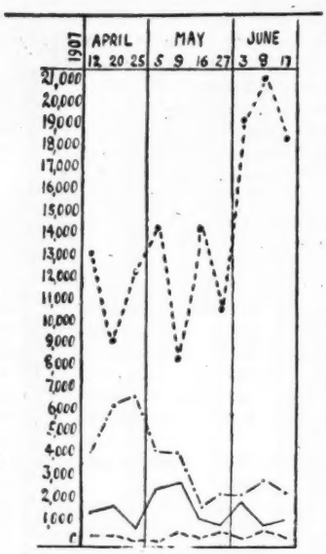

Chart 8.

EXPERIMENT VII.

A male pup, born March 18th, 1907, and kept under observation from the age of 4½ weeks. This animal was treated as Experiments IV, V, and VI. By May 14th it was undoubtedly rachitic. This animal lost in weight 907 grams during the last two weeks of life, but before that had steadily put on flesh. It seemed ill for some time before death, which occurred on June 9th.

In this case there occurred a very slight diminution in the number of red cells during the last four weeks of life and immediately after the appearance of rickets; the haemoglobin also during the same period showed a slight average decrease. For two weeks prior to the onset of rickets the red cells had averaged 5,600,000 per c.mm., while afterwards they averaged 5,250,000 per c.mm., and the haemoglobin fell from 90 per cent. to 80 per cent. The most striking feature in the condition of the blood, however, was the leucocytosis which appeared some fourteen days before death. The leucocytes until then had been fairly constant in number, averaging 22,000 per c.mm. Two weeks before death they rose to 56,200, but gradually fell again to 27,000 per c.mm. Differential counts revealed this rise to be due almost entirely to an increase of the neutrophile polymorphs, consequent most probably, as in the preceding case, on the development of bronchopneumonia.

Nucleated red corpuscles were only observed on two occasions; on day of first examination they numbered 2 in 500 leucocytes, and on third last examination 1 in 500 leucocytes.

Died June 9th. Weight 1,672.5 grams. The bones showed marked rachitic changes. The lungs were the seat of an extensive bronchopneumonia. The liver, which weighed 75 grams, was congested, and the spleen, which weighed 3.5 grams, had a normal appearance. The femur marrow was the seat of extensive myxomatous degeneration, with here and there patches of leucoblastic hyperplasia.

EXPERIMENT VIII.

Male pup, born October 2nd, 1907; kept under observation from age of 2 months, and subjected to similar conditions as prevailed in the other experiments. Shortly after coming under observation this animal developed diarrhoea and lost weight, but the diarrhoea ultimately passed off, and there was thereafter a steady increase in weight. Rachitic manifestations were observed on January 7th, 1908.

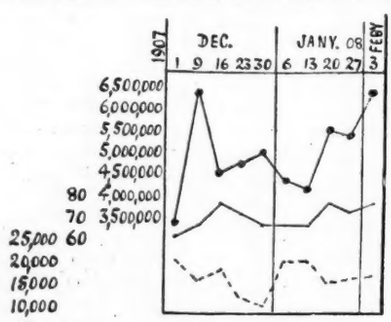

Chart 9: —·—·—Red cells; ——haemoglobin; - - - leucocytes.

In this case there developed an anaemia subsequent to the diarrhoea, but on the animal's recovery this disappeared and in spite of the development of rickets the blood continued to improve in quality. (Chart 9.) Excepting for the fall in the number of leucocytes soon after the onset of diarrhoea, their number continued very steady throughout. The differential counts revealed a fall in the lymphocytes, which took place shortly before the onset of rickets and continued until the end, and practically synchronous with this a relative increase in the polymorphs. (Chart 10.) Three nucleated reds were observed on the first examination while counting 500 leucocytes, but on no other occasion was a nucleated red corpuscle observed.

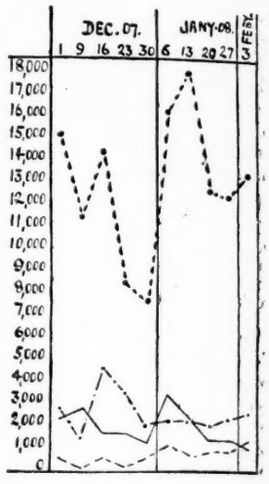

Chart 10.

Killed February 4th, 1908. Weight 3,150 grams. The bones showed marked rachitic changes. The heart and lungs were normal. Spleen (weight 5.7 grams) showed nothing abnormal. The thymus was atrophied, weighing 3.7 grams. The femur marrow showed a slight degree of leucoblastic hyperplasia.

The following points emerge from a general survey of the above experiments:

In 4 of the 8 animals there was a steady rise in the amount of haemoglobin, and in the number of red cells, in spite of the development of marked rickets. In one case there was a slight fall in the number of red cells at the time of the last observation; in another of the cases the haemoglobin and red blood corpuscles remained constant. In two only did there develop a slight degree of anaemia, and one of these animals, it should be remembered, died from bronchopneumonia, but in the other no cause could be assigned for the anaemia. Nucleated red corpuscles were seldom or never seen after the development of the disease; all the cases presented a certain degree of variation in the size of the red cells.

A degree of leucocytosis appeared in two of the experiments after the rachitic manifestations were detected, but in both this was no doubt due to the bronchopneumonia discovered *post mortem*. On two occasions there developed as a terminal event a leucocytosis, but in four of the animals there was absolutely no leucocytosis. The differential counts failed to reveal anything characteristic in the blood picture. In four of the cases the absolute number of lymphocytes fell shortly before the appearance of the rachitic manifestations, and this low count persisted, but from a consideration of non-rachitic cases, this diminution of the lymphocytes seems, like the disappearance of the nucleated reds, a physiological occurrence in the earlier weeks of life, and not a pathological phenomenon. Chart No. 11, which is compiled from the average number of neutrophile polymorphs and lymphocytes of five non-rachitic animals, shows that after the age at which the rachitic manifestations usually appeared, the lymphocytes are, as in the experiments, comparatively scanty.

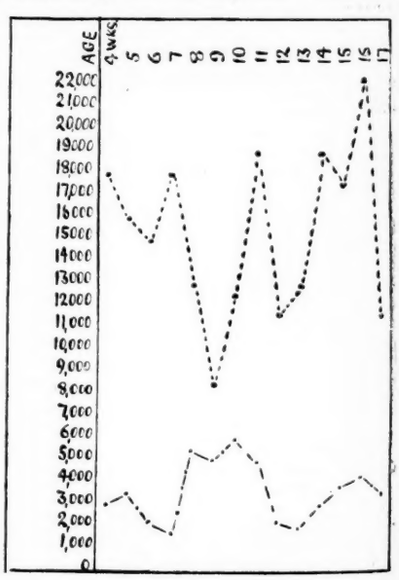

Chart 11.—Chart showing the average absolute numbers of neutrophile polymorphs and lymphocytes in five non-rachitic animals. Rickets usually appeared in the experiments when animals were between 10 and 11 weeks old. Upper curve represents polymorphs and lower curve lymphocytes.

In the earlier experiments (three in number) the lymphocytes increased somewhat after the onset of rickets, while in the later ones (five in number) the polymorphs underwent the increase, but in two of these latter cases a bronchopneumonia was discovered after death, and probably accounted for the leucocytosis.

Thus experimental rickets is not necessarily accompanied by any anaemia, and when anaemia does appear it is, as a rule, of minor degree, and may frequently be accounted for by some complication. There may or may not be a leucocytosis, and this also when it occurs may be the result of some complication. It can at least be truly said that in the blood of animals suffering from rickets there is no marked pathological change and absolutely nothing characteristic.

It is thus seen that these experimental results are in entire accordance with those obtained in the cases of spontaneous rickets, and which I have briefly reviewed above. Of 30 children suffering from active and uncomplicated rickets, only 9 presented anaemia, in not one of which was the number of red cells less than 4,100,000 c.mm. As a rule, however, the blood estimations were abnormally high. Nucleated red cells were exceedingly rare. In only 2 of the cases was there an unequivocal leucocytosis, 9 presented a leucopenia, and 19 a slight increase in the number of white cells.

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THE TREATMENT OF SLEEPING SICKNESS: A SUGGESTION.

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I HAVE read with much interest the account of the discussion on cerebro-spinal meningitis at the Sheffield meeting last August. More especially have I noticed the results obtained by Drs. McKenzie and Martin by their method of introducing locally by spinal puncture a highly immune serum which they obtained from the blood of patients who had recently recovered from the disease or, as in two successful acute cases, who were still running a course. These latter were injected with their own serum taken on the sixth and seventh day of their illness respectively.

It has occurred to me that a somewhat similar method of serum-therapy might be tried in cases of trypanosomiasis and sleeping sickness.

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fibrosis. The spleen weighed 14.17 grams; the Malpighian bodies were small, and throughout the pulp were many endothelial cells, containing blood pigment.

No thymus gland was detected. The femur marrow showed extensive myxomatous degeneration.

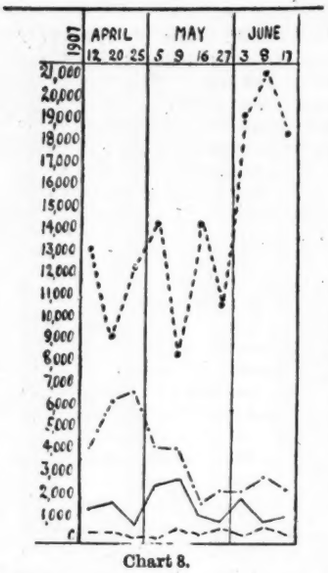

Chart 8.

EXPERIMENT VII.

A male pup, born March 18th, 1907, and kept under observation from the age of 4½ weeks. This animal was treated as Experiments IV, V, and VI. By May 14th it was undoubtedly rachitic. This animal lost in weight 907 grams during the last two weeks of life, but before that had steadily put on flesh. It seemed ill for some time before death, which occurred on June 9th.

In this case there occurred a very slight diminution in the number of red cells during the last four weeks of life and immediately after the appearance of rickets; the haemoglobin also during the same period showed a slight average decrease. For two weeks prior to the onset of rickets the red cells had averaged 5,600,000 per c.mm., while afterwards they averaged 5,250,000 per c.mm., and the haemoglobin fell from 90 per cent. to 80 per cent. The most striking feature in the condition of the blood, however, was the leucocytosis which appeared some fourteen days before death. The leucocytes until then had been fairly constant in number, averaging 22,000 per c.mm. Two weeks before death they rose to 56,200, but gradually fell again to 27,000 per c.mm. Differential counts revealed this rise to be due almost entirely to an increase of the neutrophile polymorphs, consequent most probably, as in the preceding case, on the development of bronchopneumonia.

Nucleated red corpuscles were only observed on two occasions; on day of first examination they numbered 2 in 500 leucocytes, and on third last examination 1 in 500 leucocytes.

Died June 9th. Weight 1,672.5 grams. The bones showed marked rachitic changes. The lungs were the seat of an extensive bronchopneumonia. The liver, which weighed 75 grams, was congested, and the spleen, which weighed 3.5 grams, had a normal appearance. The femur marrow was the seat of extensive myxomatous degeneration, with here and there patches of leucoblastic hyperplasia.

EXPERIMENT VIII.

Male pup, born October 2nd, 1907; kept under observation from age of 2 months, and subjected to similar conditions as prevailed in the other experiments. Shortly after coming under observation this animal developed diarrhoea and lost weight, but the diarrhoea ultimately passed off, and there was thereafter a steady increase in weight. Rachitic manifestations were observed on January 7th, 1908.

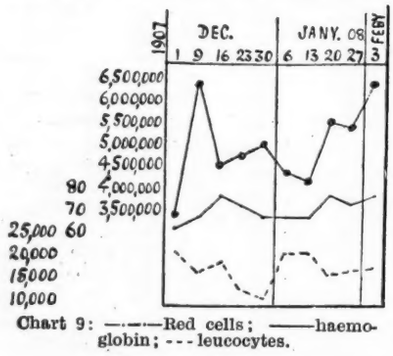

Chart 9: —·—·—Red cells; ——haemoglobin; - - - leucocytes.

In this case there developed an anaemia subsequent to the diarrhoea, but on the animal's recovery this disappeared and in spite of the development of rickets the blood continued to improve in quality. (Chart 9.) Excepting for the fall in the number of leucocytes soon after the onset of diarrhoea, their number continued very steady throughout. The differential counts revealed a fall in the lymphocytes, which took place shortly before the onset of rickets and continued until the end, and practically synchronous with this a relative increase in the polymorphs. (Chart 10.) Three nucleated reds were observed on the first examination while counting 500 leucocytes, but on no other occasion was a nucleated red corpuscle observed.

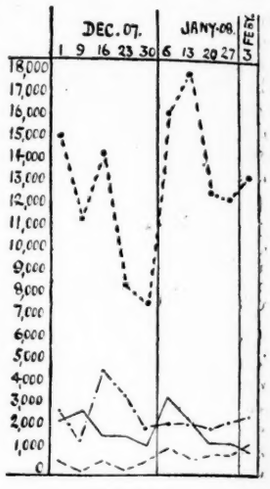

Chart 10.

Killed February 4th, 1908. Weight 3,150 grams. The bones showed marked rachitic changes. The heart and lungs were normal. Spleen (weight 5.7 grams) showed nothing abnormal. The thymus was atrophied, weighing 3.7 grams. The femur marrow showed a slight degree of leucoblastic hyperplasia.

The following points emerge from a general survey of the above experiments:

In 4 of the 8 animals there was a steady rise in the amount of haemoglobin, and in the number of red cells, in spite of the development of marked rickets. In one case there was a slight fall in the number of red cells at the time of the last observation; in another of the cases the haemoglobin and red blood corpuscles remained constant. In two only did there develop a slight degree of anaemia, and one of these animals, it should be remembered, died from bronchopneumonia, but in the other no cause could be assigned for the anaemia. Nucleated red corpuscles were seldom or never seen after the development of the disease; all the cases presented a certain degree of variation in the size of the red cells.

A degree of leucocytosis appeared in two of the experiments after the rachitic manifestations were detected, but in both this was no doubt due to the bronchopneumonia discovered *post mortem*. On two occasions there developed as a terminal event a leucocytosis, but in four of the animals there was absolutely no leucocytosis. The differential counts failed to reveal anything characteristic in the blood picture. In four of the cases the absolute number of lymphocytes fell shortly before the appearance of the rachitic manifestations, and this low count persisted, but from a consideration of non-rachitic cases, this diminution of the lymphocytes seems, like the disappearance of the nucleated reds, a physiological occurrence in the earlier weeks of life, and not a pathological phenomenon. Chart No. 11, which is compiled from the average number of neutrophile polymorphs and lymphocytes of five non-rachitic animals, shows that after the age at which the rachitic manifestations usually appeared, the lymphocytes are, as in the experiments, comparatively scanty.

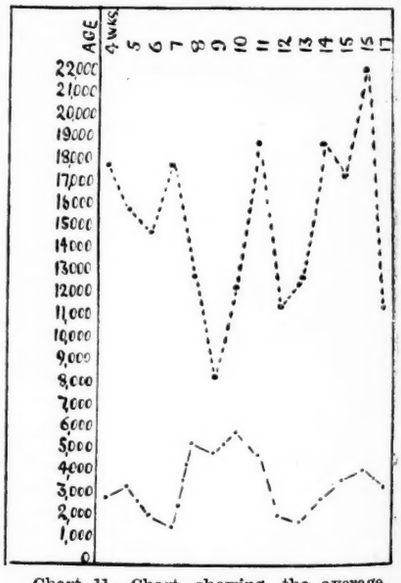

Chart 11.—Chart showing the average absolute numbers of neutrophile polymorphs and lymphocytes in five non-rachitic animals. Rickets usually appeared in the experiments when animals were between 10 and 11 weeks old. Upper curve represents polymorphs and lower curve lymphocytes.

In the earlier experiments (three in number) the lymphocytes increased somewhat after the onset of rickets, while in the later ones (five in number) the polymorphs underwent the increase, but in two of these latter cases a bronchopneumonia was discovered after death, and probably accounted for the leucocytosis.

Thus experimental rickets is not necessarily accompanied by any anaemia, and when anaemia does appear it is, as a rule, of minor degree, and may frequently be accounted for by some complication. There may or may not be a leucocytosis, and this also when it occurs may be the result of some complication. It can at least be truly said that in the blood of animals suffering from rickets there is no marked pathological change and absolutely nothing characteristic.

It is thus seen that these experimental results are in entire accordance with those obtained in the cases of spontaneous rickets, and which I have briefly reviewed above. Of 30 children suffering from active and uncomplicated rickets, only 9 presented anaemia, in not one of which was the number of red cells less than 4,100,000 c.mm. As a rule, however, the blood estimations were abnormally high. Nucleated red cells were exceedingly rare. In only 2 of the cases was there an unequivocal leucocytosis, 9 presented a leucopenia, and 19 a slight increase in the number of white cells.

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[1] Ewing, *Clinical Pathology of Blood*, second edition, Kimpton, London, 1904, p. 378. [2] Rich. C. Cabot, *The Clinical Examination of the Blood*, London, 1897, pp. 279–280. [3] Holt, *Diseases of Infancy and Childhood*, London, 1907, p. 267. [4] Cheadle, *Allbutt's Syst. of Med.*, vol. iii, p. 122. [5] Ashby, *Gibson's Textbook of Med.*, vol. i, p. 496. [6] Hutchison, Goulstonian Lectures, No. ii, *Lancet*, March 14th, 1904. [7] Pfaundler and Schlossmann, *The Diseases of Children*, London, 1908, vol. ii, pp. 205–206. [8] Morse, A Study of the Blood in Rickets, *Boston Med. and Surg. Journ.*, April 22nd, 1897, vol. cxxxvi, p. 369. [9] Esser, *Münch. med. Woch.*, 1907, p. 818. [10] Cabot, loc. cit., p. 279. [11] Starck (quoted by Wentworth, *Boston Med. and Surg. Journ.*, vol. cxlv, p. 491). [12] Paton and Goodall, *Journ. of Phys.*, vol. xxxiii, 1905, pp. 22–23. [13] Cowan and McClure, *Brit. Journ. Child. Diseases*, August, 1906.

THE TREATMENT OF SLEEPING SICKNESS: A SUGGESTION.

By ANDREW BALFOUR, M.D.,

DIRECTOR, WELLCOME RESEARCH LABORATORIES, KHARTOUM.

I HAVE read with much interest the account of the discussion on cerebro-spinal meningitis at the Sheffield meeting last August. More especially have I noticed the results obtained by Drs. McKenzie and Martin by their method of introducing locally by spinal puncture a highly immune serum which they obtained from the blood of patients who had recently recovered from the disease or, as in two successful acute cases, who were still running a course. These latter were injected with their own serum taken on the sixth and seventh day of their illness respectively.

It has occurred to me that a somewhat similar method of serum-therapy might be tried in cases of trypanosomiasis and sleeping sickness.

Although cerebro-spinal fever and trypanosomiasis differ very markedly—the one being a bacterial, the other a protozoal disease—yet there are certain points of resemblance between them. In both the organism producing the disease is found in the blood and in the cerebro-spinal fluid; at least, this is so in advanced cases of sleeping sickness. In both there is that "lymphatism" described by Westenhoeffer and Symmers in cerebro-spinal fever; and in both the mesenteric glands may show marked hyperaemia and haemorrhage. In both also the final stress of the disease falls on the cerebro-spinal system, and, though the one is an acute, the other a chronic disease, cerebro-spinal fever may run a very chronic course, producing an extreme marasmus which cannot be surpassed even in the closing scenes of typical sleeping sickness. At the same time this resemblance is of minor importance. The question is, If in sleeping sickness the cerebro-spinal canal is a *locus minimae resistentiae*, does the cerebro-spinal fluid show a marked lack of trypanocidal substances? So far as I can ascertain, this matter has not been fully investigated. We know that the blood of patients suffering from trypanosomiasis possesses trypanocidal bodies, and blood serum has been used therapeutically both by subcutaneous and intravenous injection. Why should it not be tried intraspinally?

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point corresponding with the opening in the vein. The wall of the vein appeared thin, and the tear extended almost across it, so that no attempt to suture it would have been of any use. Ligatures were applied above and below the opening, and the axilla cleared of clot. The wound was closed with silk sutures, the muscles being reunited.

It was considered that in the patient's then condition, an amputation through the arm high up would have proved fatal, and that the better course was to wait until she had recovered from the shock, and there was some indication of the extent of the gangrene which was inevitable.

By December 8th a line of demarcation had formed below the elbow, the hand and forearm being dry and shrivelled; and on this date circular amputation of the arm was performed through the middle of the humerus. No Esmarch's bandage was applied and the only vessel requiring ligature was the superior profunda artery. She did not rally well after this operation, and on December 20th she complained of much pain in the right leg, which was colder than the left and tender to the touch. There was also considerable oedema of the left leg. Dry gangrene of the right leg gradually developed and spread up to the knee.

A similar condition began on the left side, but did not extend.

She suffered much pain in the right leg, and for several days before January 26th, 1909, when she died, it was necessary to give her morphine constantly to relieve it.

At the necropsy there was thrombosis of the popliteal vessels on the right side, and considerable atheroma of the arteries generally. The kidneys were contracted and granular. The left axillary artery was thrombosed, but the coats were not ruptured.

This case is important from a medico-legal aspect, as it shows the extent of the damage which may be inflicted by the dislocated head of the humerus in a patient with atheromatous arteries. There was here no question of injury by the house-surgeon during reduction, and the method of manipulation used was that of Kocher, which is regarded by Stimson[1] as the method of all others best calculated to avoid any risk of injury to the main vessels during the process of reduction. No anaesthetic was used nor was the reduction difficult. In the series of cases collected by Stimson, 44 in number, in only 4 had the axillary vein given way; in the remainder it was the artery or one of its branches. The formation of a thrombus in the axillary artery, with or without injury to the vein, had not apparently been recorded in surgical literature.

Reference.
[1] *Annals of Surgery*, 1885, vol. ii.

SURGICAL CONSIDERATIONS CONNECTED WITH THE ANATOMY OF THE MAXILLARY SINUS.

By A. S. UNDERWOOD, M.R.C.S.Eng., L.D.S.

Since the publication of my results in this direction last autumn[1] I have had opportunities of greatly extending those observations. The examination of a very large number of skulls of very varying races and of individuals of every age has left no doubt whatever in my mind that the normal relation of the antral floor to the roots of the teeth is what I then described.

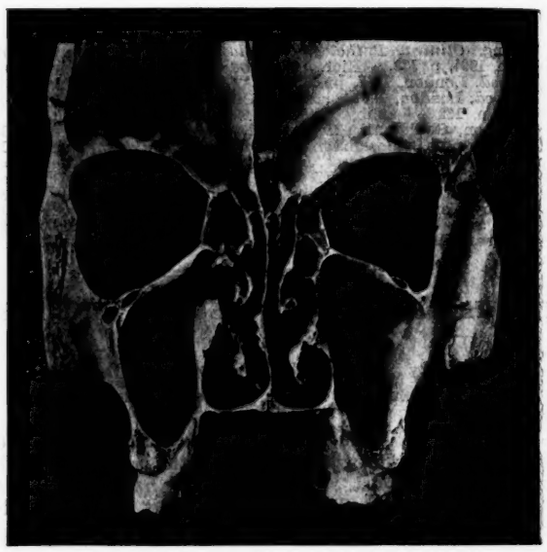
The accompanying figure shows one important fact which has some bearing upon the value of transillumination as a means of diagnosis. If the apices of the roots of the cheek teeth terminated below the antral floor or even protruded a little way into it, transillumination might show a darkness where a small amount of pus was collected in one of the basins between two septa; but if the roots of the molar teeth are embedded in the walls of the cavity, the buccal roots in the outer wall and the palatine root in the inner wall, the thickening of these regions would entirely prevent any transillumination, and the deep pocket of the antral floor descending between these roots might contain things quite undemonstrable by transillumination.

An *x*-ray photograph, on the other hand, shows such a condition fairly clearly. I have a photograph before me now of a right and left antrum—the right quite clear, the left obviously obscured in relation to the roots of a second or third molar. This left antrum had been pronounced quite normal after transillumination by two authorities.

The next point I wish to dwell upon is the fact that the third and second and first molars in order are most commonly in relation to the sinus, the third molar invariably. Further, the cavity extends a little *behind* the third molar roots. In the case alluded to above, all the teeth *in front* of the second molar had been sacrificed as far as and including the lateral, but the second and third molars had been left; their removal later produced a marked result.

I do not wish to suggest that teeth are very often the cause of antral trouble, I do not think they are; but when they are, the third, second, and first molars should be suspected in order, for the third molar is by far the most common offender.

The third point of surgical interest is that the bony septa which divide the part of the sinus embraced by the roots of the third molar from the part in relation with the second molar is generally a simple septum of bone, whereas the septa which are in relation to the front portion of the



cavity are very often traversed at their upper edge by canals in the bone, sometimes closed, sometimes partially open, which convey nerves and vessels across the cavity. I believe that surgeons who are in the habit of doing radical operations on the sinus from a large opening in front (Caldwell-Luc) do occasionally see nervous symptoms ensue consequent upon the breaking down of these septa; if so, these canals, which have not, as far as I know, been described before, may afford a clue to the cause.

The fourth point is that in very rare instances the whole of the third molar region of the sinus is entirely shut off from the rest of the sinus except for an insignificant hole very high up on the nasal side. I have only observed three such cases in the dried skull, but such a condition would in life be very misleading since it looks absolutely like the posterior wall of the sinus, while at the same time there may be a large pus-filled cavity behind it.

I have met with two cases in which the ethmoidal cells extended across the upper third of the maxillary sinus so as entirely to shut off a cavity above it, a cavity which looked at first sight like an attic chamber to the sinus itself.

Reference.
[1] British Medical Journal, 1908, vol. ii, p. 463.

The newly-founded German Infant Protection Association will hold its first annual meeting at Dresden on June 19th, at the same time as the first congress for the protection of nurslings.

On the initiative of the Belgian Minister for Foreign Affairs, six lazarettos for patients suffering from sleeping sickness have been established in the Congo State. They will be under the direction of Belgian medical men.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

EPIDERMOLYSIS BULLOSA.

DR. LEONARD B. CANE states in his interesting paper on epidermolysis bullosa (p. 1114) that the eyes in his three cases were unaffected, adding that there was "no evidence of history of phlyctenules or of any ocular disturbance." I have now seen a good many instances of this affection, comparatively speaking of course, and with one exception I have never known the eyes to be involved. The exception occurred in the case of a boy of 15, shown by me at a meeting of the late Dermatological Society of London.[1] The patient, who came under observation in the Skin Department of University College Hospital, presented the characteristic features of epidermolysis bullosa (so-called congenital pemphigus), but I noticed the eyes were not quite right. On closer examination I found there was apparently a looseness of the anterior parts, and came to the conclusion that their state was analogous to that of the skin. This being a peculiar and rare feature, and one I had never seen before, I sent the patient on to the eye department of the hospital for Mr. Flemming's opinion. He was kind enough to report as follows:

Right Eye.—Cornea clear in centre, periphery hazy. The haze is superficial beneath the epithelium. Vessels run into the cornea a short way from limbus.

Left Eye.—Whole cornea hazy, but centre less so than periphery. Three large superficial vessels run over on to the cornea, and can be easily moved over the latter. These vessels are not derived from the anterior conjunctival vessels. The superficial parts of the cornea with these vessels slide upon the underlying deeper layers.

The eyes, I may add, were said to have become affected three months after birth. The ocular condition as here related is very rare. Indeed, I know of no case recorded in dermatological literature in which it has been noted, but the complication may have been observed in ophthalmological practice.

London, W. GEORGE PERNET, M.D.

COMPLETE RETROVERSION OF THE UTERUS IN THE FIFTH MONTH.

MRS. W., aged 26, was admitted to the Plymouth Infirmary in the fifth month of her second pregnancy. She was in a state of collapse, the extremities quite cold, the temperature 97°, the pulse 160; the abdomen was distended by a tumour which looked like a full-term pregnancy; the perineum was excessively distended by a large rounded mass, and the anus widely dilated. An oedematous mass (which proved to be the posterior vaginal wall) filled the vagina and projected from it. A catheter was passed with some difficulty and 4½ pints of normal urine withdrawn. This caused diminution but not disappearance of the abdominal tumour, which now assumed a somewhat triangular form with the apex near the symphysis. Strychnine, brandy, and hot-water bottles somewhat revived the patient, and, as soon as it seemed safe, ether was administered by Mr. Stephens Ward and an examination made.

I found it just possible to insert the forefinger between the symphysis and the tumour; the os uteri could not be reached. On examination by the rectum, it was evident that the mass which was bulging the perineum (exactly as a large fetal head does) was the fundus uteri, which was wedged below a well marked sacral promontory.

By careful manipulation it was possible to push the uterus up into the abdomen, when the os could be easily reached, and was found to be dilating. The patient now gradually rallied, and all went well until 5 o'clock the next morning, when she aborted. There was but little haemorrhage, and the fetus and placenta were expelled in a normal way. Unfortunately she again became collapsed, and, in spite of everything that could be done, she died, apparently of shock.

Her friends stated that she had been for a fortnight at least in the condition above described, and had frequently complained of difficulty in walking.

Plymouth. CHARLES J. COOKE, M.D., M.Ch., R.U.I.

[1] *Brit. Journ. of Derm.*, vol. xvi, 1904, p. 225.

THE CAUSATION OF APPENDICITIS.

THE following account of what appears to have been an aborted case of appendicitis may prove of interest.

One morning in March, 1907, S. W., a male aged 36, felt, on rising from bed, some uneasiness in the right iliac region. This increased until by evening there was distinct tenderness over the region of the appendix, and rest in bed with the right thigh flexed was the only easy attitude. Hot fomentations were applied, and an aperient administered. Decubitus on the left side, with a pillow support, was tried. Two hours later, on waking, a surprising sense of relief of the local symptoms was felt, and there was a call to stool. During this act the concussion of some hardish body against the metal pan of the commode was noticed. This turned out to have been caused by the impact of a body which in size and appearance was not unlike a date stone. There were shreds of lymph adhering to it.

Thereafter recovery was uninterrupted, though a little tenderness over the region of the appendix persisted for a few days.

The specimen has, in the course of two years, become dry and cracked, disclosing a compact seedlike body enveloped by an outer covering, from which it is separate. Its composition has been ascertained.

REPORT BY THE CLINICAL RESEARCH ASSOCIATION.

This concretion is of elongated shape, and of a laminated structure, readily splitting up into concentric layers. After removing layer after layer so as to reach the centre of the mass, there is no organized structure to be found such as might have formed the original nucleus. Analysis of the concretion by chemical and microscopical methods shows its composition to be as follows:

It is to a large extent soluble in hydrochloric acid, leaving a considerable insoluble residue composed of faecal detritus, of which the more resistant vegetable structures, such as leaf hairs and spiral vessels, are readily distinguishable under the microscope.

Extraction of the mixture of acid solution and residue with ether removed a large quantity of fatty acids, which had existed in the original material in combination with calcium and magnesium in the form of insoluble soaps. We have not succeeded in detecting any cholesterin in this ethereal extract, or in an extract of the original material with boiling alcohol.

Further analysis now revealed the presence of abundant ammonio-magnesium phosphate, and a slightly smaller quantity of calcium phosphate, together with the magnesium and calcium which had existed in combination with the fatty acids. There is also a moderate quantity of material soluble in alkaline solution but precipitable on the addition of acetic acid, which has the appearance and chemical behaviour of mucin. The analysis shows, therefore, that the concretion consists of calcium and magnesium phosphates, calcium and magnesium soaps, and faecal detritus inclusive of a small amount of inspissated mucus. From the shape of the mass and from its composition it seems very probable that it had been formed in the appendix.

Straits Settlements. W. SIDNEY SHEPPARD, M.B.

TWO DEATHS CAUSED BY THE FUMES OF FERRO-SILICON.

HAVING seen an account of some deaths which occurred on board an emigrant steamer at Grimsby about Christmas time, which were attributed to the fumes given off from ferro-silicon, I now offer for publication the history of two similar cases which occurred in my practice in 1905.

On October 20th, 1905, I was called to see two children, aged 3 and 4 years respectively, who were lying ill on board a canal boat. On arrival I found one child was dead and the other lying in an unconscious state covered with a cold, clammy sweat, the pulse being hardly perceptible, the breathing slow and light, and the pupils somewhat dilated. On examining the chest, crepitations were to be heard all over; nothing else abnormal was found, but the child died soon afterwards.

I was told that the day after leaving Hull all the family suffered from a feeling of sickness and dizziness on getting up in the morning, which passed off during the day. On the following morning, however, the same symptoms appeared, only now they were accompanied by pain in the body, vomiting, and headache. Again on the third day (the day on which I saw them) there was a repetition of the two previous days' symptoms, but the effects were so pronounced in the case of the two little children that they were utterly unable to get up, and soon lapsed into the state in which I found them on my arrival. None of them,

so far as I could make out, ever complained of an unpleasant taste in the mouth either before or after vomiting, nor did they suffer from cough at any time; but the mother had noticed a peculiar smell in the cabin, which was very pronounced when I went on board.

As I was unable to certify the cause of death a *post-mortem* examination was ordered, but no further information was obtained regarding the cause of death, the only positive fact being some congestion in the lungs. Consequently certain viscera, along with a sample of the cargo, were sent to an analyst, who reported that no poison could be found in the viscera, but that the sample of the cargo proved to be ferro-silicon, a substance which, under certain atmospheric conditions, would give off poisonous gases, which, being inhaled in sufficient quantities for any length of time, would inevitably cause death. In this statement, then, lay the explanation of the symptoms, and of the physical signs found in the lungs during life and also after death.

I understand that deaths occurring with similar symptoms have taken place on boats trading between Sheffield and Hull during their passage up this canal, so that these notes may perhaps be of some interest and use to medical men residing in the vicinity of this canal, and along the banks of the Trent or Humber.

Althorpe. J. F. Robertson.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, CITY ROAD, LONDON.

A CASE OF FOREIGN BODY IN THE AIR PASSAGES.

(Reported by A. Stroud-Hosford, Senior Resident Medical Officer.)

The following case, admitted to hospital under the care of Dr. Murray Leslie, presents points of interest.

The patient, a girl aged 4, was brought to the out-patient department on July 6th, 1908.

History.

Her mother stated that she had a troublesome cough, especially in the early morning, accompanied by copious, foul expectoration. This had been going on for two years, but for the last fourteen days the child had been getting worse. As bronchiectasis was diagnosed, the child was admitted and put to bed. There was no history of haemoptysis, the child was taking food well, and was not losing flesh; no night sweating had been noticed. There was nothing definite in the family history; both father and mother were well, and the only other children were two brothers, who were in good health. The patient was said to have suffered from pneumonia two years previously, and from a second attack eight months before admission. There was also a past history of measles, but no history of ever swallowing a foreign body.

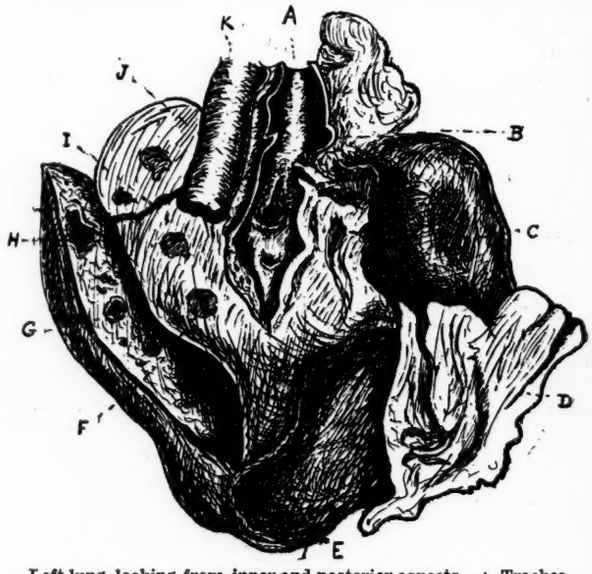
Condition on Admission.

The child was well nourished, peevish and restless; there was some cyanosis of both cheeks, though she was not obviously short of breath. The temperature on admission was 99.8° F., the pulse varied from 124 to 130; the tongue was covered with white fur, and the bowels were regular; the fingers slightly clubbed; the heart was normal, except that the pulmonary second sound was slightly accentuated. The lungs in front showed nothing abnormal; over the left lower lobe behind, however, there was somewhat diminished movement, the vocal vibrations were increased in intensity, and there was marked dullness on percussion. Well-marked tubular breathing was heard in several places, and an increase of the vocal resonance. Some fine crepitations could be heard over the whole of the lower lobe. The sputum, which was examined on several occasions, never showed the presence of tubercle bacilli, but contained pneumococci in varying numbers. The urine was acid, specific gravity 1019 to 1021, and did not contain any abnormal constituents.

The patient remained much about the same as regards physical signs, but the general condition improved.

After-history.

After remaining in hospital for a little over five weeks, she appeared so well that she was about to be discharged in a day or two, when on August 12th the temperature began to rise, and by August 15th had reached 103° F.; the pulse became very rapid, at one time reaching 180; at the same time the respirations varied from 36 to 40. On examination during this period pneumonic consolidation was detected in the left upper lobe, accompanied by the usual signs and symptoms of pneumonia, together with marked cyanosis. The patient, in spite of all treatment, went rapidly downhill, although the physical signs showed evidence of resolution by the presence of redux râles; meanwhile, however, the temperature was swinging, the pulse and respirations remaining rapid, and the patient died on August 22nd, at 6.30 p.m. Treatment consisted first of expectorants, together with creosote by the mouth and free diet; antiseptic inhalations were also used (oro-nasal), but later on the usual treatment for pneumonia was carried out.



Left lung, looking from inner and posterior aspects. A, Trachea, opened on right side; B, bifurcation of trachea; C, left portion of pericardial sac; D, lower portion of pericardium; E, base of lung; F, gangrenous cavity, as seen on surface of lung; G, thickened and dilated bronchus; H, cavity; I, adhesions of lobes; J, nail at orifice of a bronchus; K, oesophagus.

Necropsy.

The left lung was bound down to the chest wall, to the upper surface of the diaphragm, and to the left half of the pericardium, by dense adhesions. As they were broken down, portions of the lung substance gave way, and greenish, foul-smelling fluid escaped. The lung was heavy (15 oz.), of a greyish-green colour, and there were scattered purulent areas which on section proved to be gangrenous. The bronchial tubes were thickened and dilated, and contained putrid fluid. At the apex there was a friable pneumonic patch of consolidated lung.

On opening up the trachea and bronchi, a large tintack, ¾ in. in length, was found situated about 1 in. below the bifurcation of the trachea. The point of the tack was directed upwards, and the head was obstructing the orifice of one of the lesser bronchial tubes on the left side. A small area surrounding the tack was coated with black pigment.

The right lung was healthy, except for a little emphysema, and weighed 8 oz. The heart, which weighed 3 oz., was rather paler than normal, but otherwise healthy. The liver, kidneys, and spleen were slightly congested. All the other organs appeared to be healthy.

My colleague Dr. Leckie, the house-physician, was good enough to supply me with the drawing here reproduced.

Reports of Societies.

MEDICAL SOCIETY OF LONDON.

Monday, May 10th, 1909.

CHARLES BARRETT LOCKWOOD, F.R.C.S., President, in the Chair.

The Treatment of Shock.

MR. JOHN D. MALCOLM, in a paper on the treatment of shock, quoted Crile to the effect that the arteries were empty, the tissues pale, and the veins dilated in shock. He said he agreed with that, but suggested that the arteries were tensely contracted, whereas Crile taught that the vasomotor centres were paralysed and the vessels released. Crile's initial proposition that the blood pressure was lowered in shock had not been proved. Crile stated that the blood pressure was raised in the splenic vein. When the arterial pressure was lowered and the venous raised it was the sum of the changes that indicated the net results. A rise of specific gravity in the blood had usually been described in shock, indicating a contraction of the vessels and expression of fluids into the tissues. The importance of the flowing of the blood was insisted upon and attention was drawn to the fact that moving fluids were not subject to the law that pressure upon a fluid is transmitted with equal force in all directions to the surface of the fluid. By means of a tube it was shown that when water flowed through it narrowing of its calibre reduced the pressure of water in the narrowest part. Crile's explanation that the heart could not get sufficient blood because of the low pressure in the veins was unsatisfactory and irreconcilable with his previous statement that the veins were engorged. Whether the vessels were dilated or contracted in shock changes of calibre certainly occurred and the conditions necessarily returned to the normal during recovery. Hence it was necessary to divide the treatment of shock into two stages, first to prevent change and later to promote a return to the normal. Crile taught that the vessels dilated as shock progressed, and should be filled with fluid and contracted, if possible; but the speaker held that the vessels contracted in shock, that the fluids were squeezed out of them, and removed from the body as sweat. Hence vaso-dilators and sedatives should be given as shock developed, and the administration of fluids was necessary in the stage of recovery. In regard to this last view Crile was quoted to the effect that as shock deepened the quantity of fluid that could be taken into the veins became progressively smaller, and that in deepest shock fluid so injected escaped into the tissues almost immediately. On the other hand, in the days when fluids were rigidly withheld after operations patients often remained in a state of profound shock for many hours. Now it was known that a free administration of fluid was all that was necessary to ensure prompt recovery in an uncomplicated case. The employment of vaso-constrictors when the arteries were empty and would not dilate nor remain dilated was irrational, but alcohol was useful and undoubtedly improved the pulse in that stage. The action of strychnine had been condemned by Crile. The improvements of the methods of administering anaesthetics, the disuse of irritating antiseptics, the use of the Trendelenburg position and the anticipation of septic and inflammatory troubles by improved diagnosis and prompt treatment were important measures for preventing shock. The greatest danger arose in septic cases in which the vascular changes of shock were already partially produced. In such cases fluid was required and never less than during an operation. It should, therefore, be given subcutaneously during or even before a surgical procedure was commenced, to replace fluid lost and to fill up vessels whenever they tended to relax. Mr. C. R. B. KEETLEY denounced the use of strychnine injections for shock and observed that the use of ether instead of chloroform had lessened the number of cases in which shock occurred. Mr. A. PEARCE GOULD urged the importance of treatment of shock by warmth, rest, and morphine. Dr. ALEXANDER MORISON insisted on the necessity of quickening the action of the heart and suggested the inhalation of nitrite of amyl or the application of warmth. Mr. V. WARREN LOW remarked on the advisability of saline injections into a vein in very severe cases of shock. Mr. LOCKWOOD mentioned the advantages of the administration of oxygen, and Mr. MALCOLM replied.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF PATHOLOGY.

Friday, April 16th, 1909.

A. R. PARSONS, M.D., President, in the Chair.

Spleno-medullary Leukaemia.

DR. ROWLETTE exhibited specimens from a case of spleno-medullary leukaemia in a woman, aged 58. For many years she had been in good health, but had been treated once for some condition of the heart. She was admitted to hospital in October last complaining of swelling of the feet. There was noticeable a very considerable swelling of the abdomen, and the whole of the left side was filled by a large tumour with a well-defined edge, reaching down to the left iliac region. Its greatest diameter was 16 in. The blood was examined on October 18th, a fortnight after admission, and showed the red corpuscles to be 3,600,000; white cells numbered 640,000, and were of the usual type, except that one saw a larger number of "mast cells" than usual. The haemoglobin was about 70 per cent. The condition of the blood left no doubt as to the diagnosis. The patient was treated with *x* rays, and showed some improvement. In February an examination of the blood showed haemoglobin about 80 per cent. The red corpuscles were considerably above the normal, and the white had fallen. The condition of the patient's heart was bad all the time, and she died in the beginning of March. The liver was very enlarged, and the heart showed mitral disease, which was responsible in most part for the extreme passive congestion of the liver. The spleen was enormously congested. It was an interesting feature of the case that the red cells increased in number towards the end of life. Professor WHITE said he had never seen a case of leukaemia with so little infiltration of the organs. On more than one occasion he had the opportunity of testing the phagocytic power of the blood, and, while the influence of the serum in this regard appeared to be normal, he was forced to conclude that the phagocytic power of the polymorphonuclear leucocytes was considerably less than normal, and steadily lessened as the disease progressed. Dr. ROWLETTE, in reply to questions, said the patient was exposed to the *x* rays about every second day, as a routine measure, from shortly after admission to hospital until shortly before her death. There was considerable diminution in the size of the spleen, but she was troubled with severe bleeding of the bowels, and the rays were suspended on a couple of occasions. He did not know that he could put down any definite condition to the rays. It was possible that the thickness of the capsule of the spleen might be attributable to them, but he would not say so positively.

MEDICO-PSYCHOLOGICAL ASSOCIATION: NORTHERN AND MIDLAND DIVISION.—At a meeting at the Grange, Rotherham, on April 20th, Dr. G. E. MOULD, who was in the chair, gave a sketch of the regulations affecting private asylums, and of the difficulties by which the law at present surrounded their work. Though at one time they bore a bad name, yet many good names, such as those of Tuke, Newington, and Hill, had been associated with their foundation. Of such men it was impossible to believe anything but good. The idea that patients were differently treated in private asylums, and that it paid proprietors not to cure them, was absurd. The reputation and prosperity of an asylum depended on its ability to cure the curable and to treat with kindness the incurable. Dr. W. J. VINCENT recorded a case of *Conjugal general paralysis*. The husband, who acquired syphilis after marriage, had no congestive attacks, while the wife had; but in both the concomitant physical signs were well marked. The husband was a commercial traveller, 50 years of age, undersized and somewhat ill-developed. He was happy, contented, and self-satisfied, and showed the usual characteristics of general paralysis. He gradually became demented, and died about two years after admission. The wife, aged 50, was admitted three years after the husband. She was depressed and apathetic, and became steadily demented. She had

several epileptoid seizures, and died about one and a half years after admission. In both cases the *post-mortem* examination showed the characteristic changes. Dr. Kelly (for Dr. French) read a paper on *Vagrants*. In his prison experience he had come in contact with the class. The general crimes committed by them were "sleeping out," "wandering abroad," "begging alms," but never any great criminal offence needing much brain work. Out of 194 cases under his observation 122, or 63 per cent., were found congenitally defective in mental power. His conclusions were as follows: (1) Three in every four beggars and vagrants are really feeble-minded. (2) Two out of every three, or 65 per cent., of those found wanting could be shown to be congenitally feeble-minded. (3) The chief causal factor in the condition of this latter class is parental alcoholism. (4) That this particular class is not as a class criminal. (5) That all vagrants and masterless men found to be wanting should be recognized as dements, segregated at special work, farm colony labour for preference, and thus made to defray to the State the cost of their maintenance.

Association of Registered Medical Women.—At a meeting on May 4th, Dr. May Thorne in the Chair, a discussion was held on *Cancer of the breast* with regard to its recurrence. Mrs. Scharlieb commented on the apparent capriciousness of recurrence. A patient with advanced carcinoma of the breast, involving skin and muscle, was still alive eighteen years after the operation; whereas another, with a small, freely-movable growth, died two years later from recurrence in the lungs. In view of such cases as the former, operative measures should be urged on all patients who could stand the actual operation. The speaker further emphasized the importance of careful adaptation of the operation to the needs of each individual case, of free removal of the growth, of avoidance of inoculation of the edges of the wound and needle holes, and of refraining from squeezing and cutting into the tumour. The wound should be closed by Mr. Barker's collodion method, after paring the edges with a clean knife. Miss Aldrich-Blake said that among her own 36 cases, she had heard of or seen 9 instances of recurrence, 3 of these being in the scar or its neighbourhood. She thought that prophylactic treatment of the wound by *x* rays might be of use in preventing recurrence. The President remarked that the growth had recurred in one-third of her cases operated on in the period 1900–7. She considered that all patients should be given *x*-ray treatment after operation. Dr. Esther Carling, in a paper on the *Municipal treatment of tuberculosis*, described the system in Edinburgh, where all public and private medical and charitable agencies were co-ordinated. From the central tuberculosis dispensary patients could be sent to the sanatorium or Poor Law infirmary, or they could be referred for help to the Charity Organization Society, or the Citizens' Care Committee. There was compulsory notification. The patients and their families were also given instruction in the home as to what to avoid and what need not be feared. With regard to the establishment of municipal sanatoriums, the speaker said there would be much disappointment and wasting of public money if sanatorium treatment for one to six months was relied upon as the sole means of stamping out tuberculosis. Some system of after-care was necessary, and working colonies for discharged patients were much needed. The system of giving large numbers of patients one month's sanatorium treatment for purposes of hygienic education had much to recommend it.

The centenary of the first ovariotomy, which was performed by Ephraim McDowell in 1809, was celebrated at the thirty-fourth annual meeting of the American Gynaecological Society, held in New York, April 20th, 21st, and 22nd. A banquet in honour of the occasion was held at the Waldorf-Astoria Hotel on April 22nd by the New York and Brooklyn Fellows of the Society. There will, we presume, be a further celebration later, as the centenary really falls in December. Dr. Riddle Goffe, President of the Society, has through the recognized diplomatic channels asked all foreign Governments to send representatives, who will be expected to present reports on ovariotomy in their respective countries.

Reviews.

HEREDITY.

The inaugural lecture delivered by Professor W. Bateson, F.R.S., last October, on taking up the duties of the newly-founded chair of biology in the University of Cambridge, has been published in a small volume with the title, *The Methods and Scope of Genetics*.[1] The object with which the chair was founded and endowed for five years partly by an anonymous donor and partly by the university, is the promotion of inquiries into the physiology of heredity and variation (genetics). As Professor Bateson holds that the progress of such inquiries will chiefly be accomplished by the application of experimental methods, especially those which Mendel's discovery has suggested, he devoted his lecture to a description of "the outlook over this field of research in a manner intelligible to students of other parts of knowledge." The lecture is, then, a sort of brief introduction to Mendelism, and as such may be commended to those who desire to gather some general ideas on the subject as a preliminary to a more minute study of some particular part of the very wide field which that theory has opened up. It will bring comfort as well as enlightenment, because to some of us who have found the new doctrines in their most recent developments rather difficult of comprehension, there will be consolation in being told by Professor Bateson that we must not yet think of interpreting these complex phenomena in terms of a common plan. He says:

> All that we know is that there is now open for our scrutiny a world of varied, orderly, and specific physiological wonders into which we have as yet only peeped. To lay down positive propositions as to the origin and inter-relation of species in general, now, would be a task as fruitless as that of a chemist must have been who had tried to state the relationship of the elements before their properties had been investigated.

Any one who wishes seriously to pursue the study of the modern facts and theories cannot, whatever his linguistic acquirements, do better than read Professor Arthur Thomson's *Heredity*,[2] a volume to which the attention of readers ought to have been called before this. In it he will find a very comprehensive, careful, and impartial statement of the present position of the subject, and an ample collection of facts upon which to form a judgement. Indeed, the chief objection to which the book is open is that the author as a rule contents himself with marshalling the facts, and adding criticisms of theories advanced to account for them; this gives the impression that his own opinion is held in suspense, and though the words quoted above from Professor Bateson's lecture justify this attitude, yet in a book which is to all intents and purposes a textbook, it is rather disconcerting. A little dogmatism is very helpful to the memory, and if it imposes opinion upon the reader at a first perusal, it eventually stimulates a healthy tendency to question.

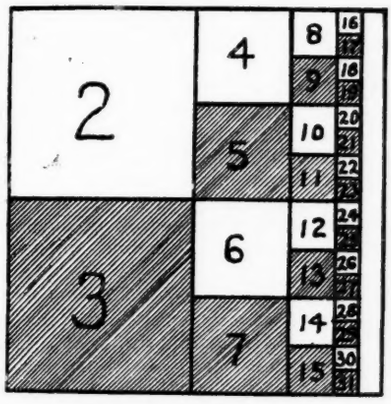
In his first chapter Professor Thomson defines heredity, and points out a fact so obvious that it ought to be a truism, but which is apt to be forgotten. This is its fundamental uniformity and continuity. Variation and mutation are established facts, and Mendel's law may be true, but the law is really only a statement of a particular case in which uniformity is displayed in variety, and even mutation is a quantitative rather than a qualitative departure from uniformity. Like begets like, and species breed true, though it is common knowledge that there are minute differences between individuals so that the shepherd knows each sheep. If we grant, as we must, that these small differences—continuous variations—occur, the important question with regard to them is: Are they variations about a mean which is always the same in every generation, or do they occur with greater frequency to one side or the other of the mean so that the species is tending to undergo modification in a particular direction? If we may speak in parables the question may be said to be. Is a species a sea with tides now setting in one direction and now in another, or is it a river slowly but certainly moving in one direction? The

[1] *The Methods and Scope of Genetics*. By W. Bateson, M.A., F.R.S. Cambridge: The University Press. 1908. (Cr. 8vo, pp. 52. 1s. 6d.)

[2] *Heredity*. By J. A. Thomson, M.A., Regius Professor of Natural History in the University of Aberdeen. The Progressive Science Series. London: J. Murray. 1908. (Demy 8vo, pp. 622. 9s.)

Darwinian hypothesis was that it was a slowly-moving river, that it was by a summation or accumulation of small differences all more or less in one direction that evolution of species occurred. The doctrine of mutation, which in its full development we owe to the botanist De Vries, does not negative the Darwinian hypothesis, but supplements it by directing attention to the occurrence of the sudden large variations which gardeners and breeders commonly call sports. From a pair of ordinary parents there arises a descendant which differs by certain marked characteristics from the parents, and the stock or strain to which they belong. The new stock breeds true, possibly, it may be, in conformity with Mendel's formula, and it is in this way, by carefully exclusive breeding, that the breeds of cattle and dogs, and some at least of the horticulturists' varieties, have been established.

Professor Thomson gives a very full and clear account of Weismann's hypothesis of the germ plasm, by which it is sought to explain some of the facts of heredity. Weismann supposed that in the development of each individual a portion of the specific germinal plasm, assumed to exist in the nucleus, is not used up, but is reserved unchanged for the formation of the germinal cells of the following generation. This very briefly stated, is the theory of the continuity of the germ plasm. In ordinary (sexual) reproduction the offspring has a dual inheritance made up, to begin with at any rate, of equal contributions from the two parents; but the contribution from the father is made up of contributions from his two parents, and that from the mother from her two parents, and so on upwards in the family tree. One of the best sections in Professor Thomson's book is that in which he states and discusses Galton's law of ancestral inheritance, which it must be remembered rests on statistical considerations. To illustrate it we reproduce from *Nature* (January 27th, 1898, p. 293) a diagram given also by Professor Thomson. It was devised by Mr. A. J. Meston, of Allen Farm, Pittsburg, Mass., U.S.A., and published in the *Horseman* (Chicago), the leading American newspaper on horse-breeding, in December, 1897. In Mr. Meston's original diagram the number 1 was assigned to the sire, and 2 to the dam, and so on. Mr. Galton modified this by numbering the subject of the pedigree 1, the sire 2, and the dam 3. In this way all male numbers in the pedigree are even and all female numbers odd. The diagram illustrates the law that the total heritage of the offspring is derived as follows: The two parents between them contribute *on the average* one-half of each inherited faculty, each of them contributing one-quarter of it. The four grandparents contribute between them one-quarter, or each of them one-sixteenth, and so on, the sum of the series $\frac{1}{2}+\frac{1}{4}+\frac{1}{8}+\frac{1}{16}+$, etc., being equal to 1, as it should be. It is a property of this infinite series that each term is equal to the sum of all those that follow: thus, $\frac{1}{2}=\frac{1}{4}+\frac{1}{8}+\frac{1}{16}+$, etc.; $\frac{1}{4}=\frac{1}{8}+\frac{1}{16}+$, etc., and so on. The prepotencies or subpotencies of particular ancestors, in any given pedigree, are eliminated by a law that deals only with *average* contributions, and the varying prepotencies of sex in respect to different qualities, are also presumably eliminated. Corrections for these can, of course, be made in any particular pedigree, taking care that the corrected series still amounts to 1 exactly. It should be borne in mind that the word "heritage" has a more limited meaning than "nature," or the sum of the inborn qualities. Heritage is confined to that which is inherited, while nature also includes those individual variations that are due to other causes than heredity, and which act before birth. Now, individual variation in a race that is stable must have a destructive as often as a constructive effect. Consequently its effects balance one another in *average* results, and disappear from a law which deals only with these. The area of the square diagram represents the total heritage of any particular form or faculty that is bequeathed to any particular individual. It is divided into subsidiary squares, each bearing distinctive numbers, which severally refer to different ancestors. The size of these subsidiary squares shows the average proportion of the total heritage derived from the corresponding ancestors.



This regular mosaic of inheritance is, of course, disturbed by intermarriage of related ancestors. In the case of marriage of first cousins, for instance, 10 and 12, and 11 and 13, are not four, but two persons. It is obvious that if we are dealing with a nation or a community and go back many generations this "reduction of ancestors," as it has been termed, must become more and more influential. It is, of course, not easy to find family trees that go back complete for more than a few generations, but Lorenz and Richter have shown that in the twelfth generation the present German Emperor had at most 533 ancestors, whereas theoretically he might have had 4,096; the effect begins to become particularly marked in the eighth generation, where, instead of 256, there were at most only 116. Professor Thomson quotes, as we gather with approval, Mr. Yule's modification of the late Professor Weldon's statement of the law of ancestral inheritance: "The degree to which a parental character serves as a basis for estimating the character of offspring depends not only upon its development in the individual parent, but on its degree of development in the ancestors of that parent." Yule argues further that "Mendel's laws and the law of ancestral heredity are not necessarily contradictory statements . . . but are quite consistent the one with the other, and may quite well form parts of one homogeneous theory of heredity." Professor Thomson's own comment is that "Mendelian formulae apply to the progeny of known crosses or hybrids, while Galtonian formulae apply to intraracial heredity." It seems probable, so far at any rate as the present stage of the study of the subjects permits an opinion to be formed, that the law of ancestral heredity with its rider as to reduction of ancestors is of the greater importance in medicine.

Professor Thomson supplies a full and fair account of the facts and theories of Mendelism, and in concluding chapters discusses heredity and sex, and some social aspects of biological results. Finally he gives a bibliography, which, though he tells us that it "is simply representative, not in any way exhaustive," occupies nearly fifty pages, a subject index to the bibliography, and a general index to the text.

Professor BATESON'S very recent book, *Mendel's Principles of Heredity*,[3] is a presentation of the observed phenomena, with a relatively brief discussion of their bearing on general conceptions of biology, and on practical breeding. On the latter point Professor Bateson sums the matter up in his preface by stating that though the principles already ascertained will be found of practical assistance in the formation of new breeds and may save many mistakes and waste of time, they cannot materially help in "the business of breeding winners in established breeds . . . for almost always the points which tell are too fine to be dealt with in our analysis." It appears to us that *mutatis mutandis* this last statement applies very exactly to any attempt to apply Mendelian doctrines to medicine in any broad way—the points are, as a rule, too fine to be dealt with in the analysis. In a very interesting passage towards the end of the book is discussed the relation of Mendelism and natural selection. The author begins by pointing out that increased knowledge of the physiology of heredity has abolished an old difficulty because Mendelism teaches that a character appearing in an individual is not in danger of obliteration by crossing with individuals lacking that character because so far as the character depends on factors that segregate no obliteration takes place. There is, he considers, nothing in Mendelian discovery which runs counter to the cardinal doctrine that species have arisen "by means of natural selection, or the preservation of favoured races in the struggle for life," the short definition of the doctrine given by Darwin himself.

[3] Cambridge University Press. 1909. (Roy. 8vo, pp. 410. 12s.)

The scope of natural selection is limited by the laws of variation, and after pointing out that Mendelian observations are helping us to perceive how precise and specific they are, Professor Bateson continues:

> In the light of the new knowledge, various plausible but frequently unsatisfying suggestions put forward, especially by Wallace, Weismann, and their followers, as probable accounts of evolutionary progress must be finally abandoned. It cannot in candour be denied that there are passages in the works of Darwin which in some measure give countenance to these abuses of the principle of natural selection; but I rest easy in the certainty that had Mendel's paper come into his hands, those passages would have been immediately revised.
>
> For Darwin, indeed, Mendelism would have provided sound reasons for a return to his own earlier views. In abandoning his belief in the importance of individual variations, which previously he had held in a form not incompatible with that now demonstrated to be right, he took a step in the wrong direction. The criticism before which he then gave way has proved invalid. To him, most of all men, would the knowledge have come as a delight that progress, even if in a direction unexpected by himself, had been made with that problem the solubility of which he was the first to make apparent to the world.

Professor Bateson prints in this volume translations of Mendel's papers on hybridization and on *Hieracium*, and gives a short biography of the monk and Prälat of the Königskloster of Brünn. It appears to be suggested in this, which is illustrated by three portraits, that Mendel embarked on his experiments with peas, because he did not find himself in full agreement with Darwin's views. If so, it is remarkable that he did not take care that a copy of his paper reached the great naturalist's hands.

Professor Bateson promises in another volume a fuller discussion of the theoretical bearing of the new facts on the general problem of biology; the volume now published is designed to be a textbook, and as such leaves nothing to be desired; it is complete, clearly written, and well illustrated.

NEUROLOGY.

PART I of vol. iii of the new edition of *Quain's Elements of Anatomy*[4] is too extensive and too full of detail for a student's textbook, but as a book of reference for students and practitioners it is admirable, and will certainly take its place as the most complete account of those parts of the nervous system with which it deals which has yet appeared in this country. It comprises accounts of the general structure and development of the central nervous system, and descriptions of the special structure of the spinal cord and brain, leaving the nerves and special sense organs to be dealt with in Part II. In the last edition the sections on the nervous system were very good, but this volume is still better and more complete. The illustrations are numerous, clear, well executed and well arranged, and the text is crisp, definite, and lucid. As a whole the book forms an excellent survey of present-day knowledge, and the reader will find in its pages not only the author's opinions regarding disputed points, but hints which will enable him to refer to the opinions of other observers. A new departure has been made by the introduction of figures and descriptions of the brains of higher apes, which will prove not only interesting to students of comparative anatomy, but also useful to those who wish to study the records of experiments on apes' brains. Readers interested in the delimination of the areas of the cerebral cortex will find a good summary of the delimination work which has been done by means of developmental, histological, and macroscopical methods. The book will no doubt be greatly used as a reference book by teachers, but it is to be hoped that the fact that so much detailed knowledge is available will not induce examiners to expect students to become acquainted during the course of an ordinary medical curriculum with all the minutiae of so complicated a subject.

Ten out of the thirty-three sections in which the great French new treatise on surgery, by Professors LE DENTU and DELBET, is to be completed have already come out, and many of them have been reviewed in previous numbers of this JOURNAL. The eleventh section to appear, which is the thirteenth of the whole series, is by Professor AUVRAY, and deals with diseases of the cranium and brain.[5] It may be said at once that this section is fully worthy to take its place by the side of the other volumes of the *Nouveau Traité* that have preceded it. The first forty-five pages of Professor Auvray's work are devoted to the highly interesting history of cranial surgery and trephining, to cranial anatomy and topography, and to the general technique of operations upon the head. The succeeding chapters deal with all the varieties of the traumatic lesions of the cranium and their complications, new growths of the scalp and skull, infective lesions of all sorts—sixty-six pages are given to the complications of otitis media—congenital lesions of the head and brain, and, finally, diverse affections, such as epilepsy, that have not found a place for discussion elsewhere in the book. Diseases of the spinal column and cord are to be considered in a separate volume, which also is to be from the pen of Professor Auvray. A very extensive knowledge and great enthusiasm have been brought to bear on the writing of this volume, and it is large enough to enable Professor Auvray to deal exhaustively with his subject. His style is lucid and agreeable, and as easy to read as we have learnt to expect a French textbook to be. The illustrations are adequate, many of the figures being new and derived from photographs, others being reproduced from older surgical works or the more recent literature. The subject-matter is well arranged, so that the search for information on any particular point is not a matter of great difficulty, and it is also well up to date. The volume would undoubtedly gain by the insertion of more references to the literature, with which the author clearly has a good acquaintance; but extensive lists of references are, after all, a feature of the German textbook rather than of the French, and perhaps cannot fairly be looked for in the latter. The table of contents at the end of the book is so short as to be of little service, and there is no index. The volume is of handsome appearance, but by no means free from typographical errors. It may be warmly recommended to readers in search of a sound and up-to-date textbook of cranial and cerebral surgery.

The fourth edition of Professor DANA'S *Textbook of Nervous Disease and Psychiatry* was reviewed in the BRITISH MEDICAL JOURNAL of August 6th, 1898. The seventh edition is now before us.[6] In that earlier review the opinion was expressed that the book deserved commendation on the ground of its practical and concise character and form. The same praise belongs to it to-day. That the book has the defects of its qualities will be obvious when it is noticed that the matter relating to all the diseases of the nervous system, central and peripheral, organic and functional, and to all the recognized diseases of the mind, is compressed into some 700 pages of type. Still, the root of the matter is in those 700 pages. Its greatest strength is, perhaps, shown in the chapters on neurasthenia, hysteria, and psychasthenia, the last subject receiving a degree of elaboration on original lines which might well entitle Dr. Dana to be considered an expert in the matter. For those who possess the sixth or earlier editions it may be said that much has been added on the subjects of neuritis, tabes, multiple sclerosis, brain tumours, the tics, and paralysis agitans. The comparison between its rivals that especially suggests itself is with the work on *Nervous and Mental Diseases* by Dr. Church and Dr. Petersen—comparatively recently reviewed in these columns—and, while it may be said that in several respects it is perhaps superior, particularly in its more thorough treatment of the anatomy and pathology of the nervous system, it is, on the other hand, not so pleasant to read, and from the clinical standpoint is probably rather less helpfully arranged. It is, however, well up to date and exact, and although its manner is necessarily curt, its matter is in good proportion.

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[4] *Quain's Elements of Anatomy.* Vol. iii, Neurology. By E. A. Schäfer and J. Symington. Part I. Eleventh edition. London: Longmans, Green and Co. 1908. (Roy. 8vo, pp. 432; figs. 261. 15s. net.)

[5] *Maladies du Crâne et de l'Encéphale.* Par M. Auvray. Nouveau Traité de Chirurgie, publié sous le direction de A. le Dentu et Pierre Delbet. Fascicule xiii. Paris: J. B. Baillière et Fils. 1909. (Sup. roy. 8vo, pp. 508; figs. 130. Fr. 10.)

[6] *Textbook of Nervous Diseases and Psychiatry.* By Charles L. Dana, A.M., M.D., LL.D. Seventh edition. London: J. and A. Churchill. 1909. (Roy. 8vo, pp. 794. 25s.)

PATHOLOGY.

IN their *Special Pathology*,[7] which has made its appearance shortly after the issue of their *General Pathology*, Professor BEATTIE and Dr. DICKSON again claim special cause for consideration on the ground that their knowledge has been acquired in a particular university, the merits of which they describe in terms of enthusiastic eulogy. We cordially agree with the writers that this university is a most excellent institution, but we prefer to criticize a book on its intrinsic merits, regardless of the author's Alma Mater, and consider special appeals of this nature to be irrelevant. The majority of men take a loyal pride in their own particular university, but generally assume that its especial merits are too well known to need advertisement. This *Special Pathology* is evidently the work of men who are thoroughly experienced in lecturing and demonstrating to medical students. It lays special stress on the importance of studying museum specimens, and contains a large number of excellent illustrations depicting typical examples of pathological lesions. The only possible fault—if it be a fault—which might be found with this aspect of the book is that in many instances the nature of the pathological condition illustrated is so obvious that no student is likely to find any difficulty about it. In addition to assimilating this elementary knowledge, the student ought to receive some training in the differential diagnosis of conditions which he is likely, at the first glance, to confuse; and for this purpose it is well to call his attention to lesions which require a little thought before they can be interpreted correctly, and to teach him how to discriminate. The histological descriptions and illustrations are also good, and we note that the authors adopt the useful plan of introducing brief accounts of normal histological appearances as standards for comparison with the changes produced by disease. We are also glad to find that, wherever possible, they illustrate salient features under a low magnification; this will serve as a useful corrective to the student's common habit of resorting too readily to his high-power lens. At the same time the authors might have advantageously supplemented their instruction by entering more fully into the minute details of cellular morphology.

In Part I of his *Practical Bacteriology, Blood Work, and Animal Parasitology*,[8] Dr. STITT describes in a practical way the methods of cultivating and identifying bacteria, prefacing the description of each group of organisms with what he terms a "key"—that is, a scheme of the characteristics which must be elucidated in order to establish a differential diagnosis. This portion of the book concludes with a short and instructive chapter on immunity which is intended to simplify what the author terms "this bugbear of the medical student." Part II, which is concerned with blood work, is rather brief, and calls for no special comment. Part III, on animal parasitology, is the most useful portion of the book; it gives a concise outline of the many varieties of animal parasites which are of medical interest, and presents their zoological classification and diagnostic features in a convenient and lucid manner. Part IV, on the examination of pathological material in the clinical laboratory, is too brief to rank as an important contribution to this subject.

The *Frankfurter Zeitschrift für Pathologie*,[9] of which we have received the first two volumes, is a publication devoted to the study of pathology in its widest sense. It was founded early in 1907 by Professor Eugen Albrecht, Director of the Pathological Institute of Dr. Senckenberg's Foundation at Frankfurt-am-Main, to commemorate the 200th anniversary of the birth of Dr. J. C. Senckenberg, to whose liberality the foundation owes its existence. In publishing this journal Professor ALBRECHT'S intention has been to emphasize the relations and interconnexions that exist between his own science, pathology, and the kindred sciences of physiology, normal anatomy, embryology, biology, and practical medicine, and to give critical discussions of the problems that arise from time to time at the borderlands of these different kingdoms of natural and applied science. The character thus laid down for the journal by its first editor is maintained by the two score and more original papers, and by the critiques, that go to make up its first two volumes; they show so much good work that it is not possible to give any detailed account of their contents in the space at our disposal. An exception, however, must be made in favour of the several excellent articles and discussions from the able pen of the editor, whose sudden death in June, 1908, has robbed the younger school of pathologists of one of its most brilliant exponents. His place as editor has been taken for the time by Dr. A. Knoblauch. Both editor and publisher may be congratulated upon the appearance and get-up of the periodical, which is well printed and well illustrated.

[7] *Textbook of Special Pathology.* By J. Martin Beattie, M.A., M.D., and W. E. Carnegie Dickson, M.D., B.Sc., F.R.C.P.Edin. London: Rebman Ltd. 1909. (Demy 8vo, pp. 620, 191 illustrations, and 2 coloured plates. 17s. 6d.)

[8] *Practical Bacteriology, Blood Work, and Animal Parasitology.* By E. R. Stitt, M.D. London: H. K. Lewis. 1909. (Post 8vo, pp. 305; with 86 illustrations, 6s. 6d.)

[9] *Frankfurter Zeitschrift für Pathologie.* Herausgegeben von Eugen Albrecht. Vols. i–ii. Wiesbaden: J. F. Bergmann. 1907–8. (Sup. roy. 8vo, pp. 1–220, 221–376, 1–224, 225–389. 7s., 5s., 7s., and 7s. 3d. respectively.)

INDIAN SNAKES.

To residents of India the recognition of poisonous snakes is of importance, and Major WALL, I.M.S., tells them how to do this easily in his little book, *The Poisonous Terrestrial Snakes of our British Indian Dominions and How to Recognize them*.[10] The first edition of 2,500 copies was very quickly sold. This of itself is proof of its popularity, and it is equally certain that this new edition will meet with a success similar to, or even greater than, the first. There is some doubt as to how specialists may receive Major Wall's classification. Mr. Boulenger, one of the authorities on the subject, takes osteological peculiarities into account, and he and others will probably object to a classification based chiefly on scales; but, as Major Wall states that he does not disturb Mr. Boulenger's classification, which is the accepted one, harmony may, after all, still reign. The text runs smoothly, and has plenty of diagrams to explain technical terms; such being the case, even though the subject is by no means easy, an eager student should soon get a grasp of the chief details. As far as practical utility goes, it is impossible to tell a poisonous from a non-poisonous snake when only a glimpse of it is seen in the bush; but if the reptile is killed, then it is certainly of value to be sure that it is poisonous before injecting antivenene into any one who may have been unfortunate enough to be bitten. This good and useful little book sums up the matter in a nutshell.

SOME REFERENCE BOOKS.

AMONG a number of reference and other books which have reached us, the first place, perhaps, should be given to the edition of *Burdett's Hospitals and Charities for 1909*,[11] which in all its characteristics is precisely on all-fours with its nineteen valued predecessors. It contains somewhat fuller information, however, with regard to nursing homes in this country and the principal Continental cities, and the various chapters in which philanthropic enterprises of all kinds are annually reviewed have, of course, been brought up to date. In one way, perhaps, special interest attaches to this particular issue, as it attempts to present an analysis of hospital expenditure in 1907 made according to the plan introduced by the three Metropolitan Hospital Funds—the revised uniform system of accounts. This is a task which we ourselves performed a year ago in respect of a majority of hospitals in the metropolis, and when the investigation commenced it was intended to furnish simultaneously information of the same kind with regard to the more important hospitals in the provinces. The idea had, however, to be abandoned, as it was found that the moment had not come when the task could be effectively undertaken. It is clear from this volume that, despite the time which has meanwhile elapsed, the position has not greatly altered, for only in the case of a small proportion of the provincial hospitals are details as to the cost per bed supplied on the revised system, and even in these instances there are indications that the figures given have not been derived from books

[10] *The Poisonous Terrestrial Snakes of our British Indian Dominions and How to Recognize them.* By Major F. Wall, I.M.S., C.M.Z.S. Second edition, third thousand. Bombay: The Bombay Natural History Society. 1908. (Roy. 8vo, pp. 78. Rs. 2.)

[11] *Burdett's Hospitals and Charities for 1909.* By Sir Henry Burdett. London: The Scientific Press Limited. (Pp. 932. 7s. 6d.)

kept strictly in accordance with its rules. The reform, therefore, has still to be carried through, but the leaven is working, and the remarks made on the subject by Sir Henry Burdett should help to hasten its completion. Nevertheless, the tables supplied by the volume are still of interest, though open to one criticism. They contain so much detail that even persons well versed in hospital accounts must find them difficult to follow, and we suspect that ordinary readers usually pass them over altogether. This is a pity, because it is greatly to be desired that such persons should be encouraged to take an intelligent interest in hospital accounts, and learn how to gauge the efficiency of the administration of institutions in which they are interested. The tables as they stand are a monument of painstaking energy, but it might be better in the interests of greater clearness to sacrifice some of their comprehensiveness, aiming, perhaps, at supplying nothing more than essential figures, such as those indicative of the size of the institution, and of the cost per bed and per out-patient attendance. It seems to us that in this way Sir Henry Burdett would quicker achieve the great purpose for which he has so long laboured.

The edition for the current year of the *City of London Directory*[12] was brought out at the beginning of May. This is a long-established practice in the case of this *Directory*, and has the advantage that the publication is thus free from the errors regarding names and addresses which are commonly to be found in directories finally revised at a time when Christmas and New Year's removals have not yet been completed. In a way the volume is to be regarded not only as a directory, but as a guide to the City of London, for it furnishes brief accounts of the histories of the various guilds, and gives complete lists of all the committees both of the Corporation of the City of London and of the London County Council. Among other useful features are the accounts given of the schools and other charities connected with the City, and an elaborate map. As a whole the work is invaluable to all those who have dealings either with City institutions or with business houses within the famous square mile.

Equally useful in its way is the *Year Book of the Scientific and Learned Societies of Great Britain and Ireland*,[13] of which the twenty-fifth annual issue has now appeared. Its purpose is to supply information as to the habitation, object, and officials of all scientific bodies in Great Britain and Ireland, together with an account of the work they have done during the preceding year. The way in which it fulfils this end gives it also a value for all literary and scientific workers. One of its features is a list of papers read at each society; and a glance through these is eminently suggestive, for by taking up any volume of the series and studying the titles of the papers recorded it is possible to gauge the tendency and direction of scientific thought at the time. Complete lists of the papers read at the Annual Meetings of the British Medical Association are supplied, and information is given as to upwards of 180 other societies connected with medicine and its practice, apart from those which confine themselves to such subjects as biology, microscopy, and anthropology. We are sure, however, that the British Phrenological Society should not be included in the section devoted to medical societies, even if in a year book of scientific societies there is really any room for it at all.

NOTES ON BOOKS.

Mental Nursing.

A small book on *The Care and Nursing of the Insane*, by Dr. J. Baily, the Medical Superintendent of Hanwell Asylum,[14] has recently been issued. It is a reproduction of the course of lectures which he has given for some years to his asylum staff, already published in serial form in the *Nursing Mirror*, and is divided into five parts, dealing respectively with anatomy and physiology, sick nursing, the germ theory of disease, the symptoms of disease, and mind and mental diseases. The book is entirely practical in aim and treatment, and should be of great use to the class to whom it is addressed.

Another and much larger book on *Nursing the Insane*[15] comes from America. The aim of the writer, Dr. Clara Barrus, is "to furnish special instruction and suggestions to students engaged in caring for the insane, to help new workers to the right beginning, and to aid the more experienced to greater efficiency." This aim the book more than fulfils. It is, we are bound to say, the best book on the subject we have as yet read. It is written by a woman for women, but in the main the instruction and advice given is as applicable to male as to female nurses and attendants. The book is somewhat bulky, but as against this it is exceedingly easily read; and, notwithstanding that it neglects no detail of the proper offices of the nurse, there is not a dry page from cover to cover. The general plan is excellent. It is of little use to nurses to know the comparative proportion of erythrocytes and leucocytes in the blood, or the functions of fibrinogen, or to receive instruction on brain patterns or—often doubtful—cerebral localization; but it is of the last importance that they should understand the therapeutic use and value of every part and minute detail of their work and duty; that they should be taught how and what to observe; should be encouraged to be quick, neat, clean, vigilant, and resourceful, and, above all, sympathetic and unflaggingly cheerful and optimistic. For this latter purpose we know of no better book than this by Dr. Barrus, which at the same time contains a wealth of useful and accurate information for the nurse, admirably arranged and most lucidly expressed.

[12] *The City of London Directory for 1909.* London: The *City Press* Office. (Pp. 1126.)

[13] *Year Book of Scientific and Learned Societies of Great Britain and Ireland.* London: Charles Griffin and Co. (Pp. 352.)

[14] *The Care and Nursing of the Insane.* By Percy J. Baily, M.B., C.M.Edin. London: The Scientific Press, Ltd. 1908. (Cr. 8vo, pp. 270 2s. 6d.)

[15] *Nursing the Insane.* By Clara Barrus, M.D. New York and London: Macmillan. 1908. (Demy 8vo, pp. 426. 8s. 6d.)

MEDICINAL AND DIETETIC PREPARATIONS.

Lecithin-Agfa.

Lecithin has recently been stated to have a valuable effect in tabes when administered by intramuscular injection. We have received from Messrs C. Zimmermann and Co. (9 and 10, St. Mary-at-Hill, London, E.C.) a sample of a sterilized solution of lecithin in olive oil, supplied by the Actien-Gesellschaft für Anilin-Fabrikation for the purpose. The lecithin employed, distinguished as lecithin-agfa, is stated to be prepared from pure yolk of egg; one part is dissolved in four parts of olive oil and the solution supplied in sealed ampoules. Some separation of the lecithin appears to take place on standing, but on gently warming the ampoule before opening this disappeared, giving a clear liquid, in which fresh lecithin was readily shown by appropriate tests.

Flavoured Sanatogen.

Sanatogen, which is stated by the makers, the Sanatogen Company, 12, Chenies Street, London, W.C., to consist of 95 per cent. of caseine in chemical combination with 5 per cent. of sodium glycero-phosphate, appears to have attained considerable favour with the profession, but its use has been limited by the peculiar flavour of the original product, which many persons have found distasteful. The company has sent us a sample of flavoured sanatogen, the flavouring used being lemon oil; the result is, on the whole, very satisfactory, as the lemon almost completely covers the disagreeable flavour to which reference has been made. We have been supplied with an analysis made by Sir Charles A. Cameron, Medical Officer of Health and Public Analyst for Dublin, who found sanatogen to consist of 9.5 per cent. moisture and 90.5 per cent. of dry matter, including 7.35 per cent. of ash. It contained 83.13 per cent. of albuminoids (nearly wholly made up of caseine, but including a little albumen), together with 2.2 per cent. of phosphoric acid, a small portion of which existed in the albuminoids, but the by far larger portion was in the form of sodium glycero-phosphate.

A Compound Syrup of Creasote.

Messrs. J. Maitland and Son (10, Chester Place, Hyde Park, London, W.) have submitted a sample of their preparation "Sirop creophine." This contains creosote (1 minim in one teaspoonful) in combination with lacto-phosphate of lime, together with heroin hydrochloride and other drugs used in the treatment of cough. The presence of creosote is readily recognizable, but the syrup causes no burning taste, and is quite palatable, either alone or with water, with which it mixes freely, forming a bright solution; it is strongly acid.

THE INTERNATIONAL MEDICAL CONGRESS.

THE sixteenth International Medical Congress will, as has already been stated more than once in the JOURNAL, be held at Budapest this year from August 29th to September 4th. The congress is under the patronage of the King of Hungary (the Emperor of Austria), who will be represented by his Imperial and Royal Highness the Archduke Joseph.

SECTIONS.

The work of the Congress will be distributed among twenty-one sections as follows:

I. Anatomy, embryology.
II. Physiology.
III. General and experimental pathology.
IV. Microbiology (bacteriology), pathological anatomy.
V. Therapeutics (pharmacology, physical therapeutics, balneology).
VI. Internal medicine.
VII. Surgery.
VIII. Obstetrics and gynaecology.
IX. Ophthalmology.
X. Diseases of children.
XI. Diseases of the nervous system.
XII. Psychiatry.
XIII. Dermatology and venereal diseases.
XIV. Diseases of the urinary tract.
XV. Rhinology and laryngology.
XVI. Otology.
XVII. Stomatology.
XVIII. Hygiene and immunity.
XIX. Forensic medicine.
XX. Military and naval sanitary services.
XXI. Maritime medicine and tropical diseases.

GENERAL MEETINGS.

There will be six general meetings—"not contradictory," as is stated in the official circular, which, we presume, means that discussion will not be allowed.

The following addresses, among others, will be delivered at these meetings:

Professor Baccelli, of Rome: The administration of heroic remedies by the veins.

Dr. E. F. Bashford, of London: On cancer.

Professor R. Kutner, of Berlin (by request of the Prussian Central Committee of Medical Education): Medical education.

Dr. A. Laveran, of Paris: Tropical pathology.

Professor J. Loeb, of Berkeley (University of California): Artificial parthenogenesis and its bearing upon the physiology and pathology of the cell.

An address on representations of disease in the pre-Columbian era will be delivered on one of the days during which the congress is in session by Dr. E. Hollander, of Berlin.

COMMUNICATIONS BY BRITISH MEMBERS.

Among the communications promised by British members of the Congress are:

Section of Anatomy and Embryology.—Professor Anderson (Galway): (1) The occipital bone in primates, and (2) The race types on the Atlantic (Irish) coast; Dr. Fawcett (Bristol): (1) Communications on the development and ossification of the human skeleton, and (2) Models illustrating the development of the human mandible, maxilla, and the sphenoid, with remarks thereon.

Section of Physiology.—Professor Anderson (Galway): Some points of interest bearing on suggestion and nerve reflex.

Section of Therapeutics.—Dr. Bradbury (Cambridge): The causation and treatment of high blood pressure and arteriosclerosis.

Section of Internal Medicine.—Dr. Inman (London) will open a discussion on immunity in its relation to practical medicine.

Section of Surgery.—Mr. Mayo Robson (London) will open a discussion on the chronic form of pancreatitis. Among the communications promised in this section are the following: Mr. Tubby (London), Nerve anastomosis with some results; Sir William Macewen (Glasgow), (1) The development and reproduction of bone, (2) The surgery of the brain and spinal cord; Mr. Moynihan (Leeds), Duodenal ulcer.

Section of Orthopaedic Surgery.—Mr. Robert Jones (Liverpool) will open a discussion on Arthrodesis.

Section of Obstetrics and Gynaecology.—Dr. Thorne (London): On a series of consecutive laparotomies.

Section of Ophthalmology.—Mr. Jessop (London) will open a discussion on the serum treatment of diseases of the eye. Among the papers to be read are the following: Dr. Edridge-Green, Some curious phenomena of vision and colour vision.

Section of Diseases of the Nervous System.—Dr. Head (London) will open a discussion on sensory impulses in the brain and spinal cord. Among the papers to be read is one by Dr. Savill (London) on the influence of toxic blood states on the nervous system. Dr. Bond (London) will read a paper entitled A Description of Long Grove Asylum.

Section of Dermatology and Venereal Diseases.—Sir Malcolm Morris (London): On the treatment of lupus erythematosus. Dr. Whitfield (London): On some changes in the body fluids in relation to skin diseases.

Section of Diseases of the Urinary Tract.—Mr. Freyer (London) will open a discussion on total enucleation of the enlarged prostate, with a review of 600 cases of the operation; and another will be opened by Dr. Newman (Glasgow) on the early diagnosis and treatment of tuberculous disease of the kidney.

Section of Rhinology and Laryngology.—Sir Felix Semon (London) will open a discussion on the diagnosis and treatment of laryngeal cancer. Dr. Watson Williams (Bristol) will show models of the osteoplastic method of operation on the frontal sinus.

Section of Otology.—Mr. Cheatle (London) will open a discussion on the infantile types of the temporal bone and their surgical importance; and Mr. Yearsley (London) will open one on the later stages of chronic catarrhal deafness. Mr. Cresswell Baber will read a paper on the treatment of otitis media non purulenta chronica. Dr. Gray (Glasgow) will deal with the relationships of the aquaeductus perilymphaticus, the recessus perilymphaticus, and the fenestra rotunda in reptilia, aves, and mammalia. Mr. Lake (London) will present a communication on the treatment of vertigo and tinnitus. Dr. Milligan (Manchester) will read a paper on the development of the auditory nerve in vertebrates; and Dr. StClair Thomson (London) will read one on the influence of nasal obstruction in chronic catarrh of the Eustachian tube and middle ear.

Section of Stomatology.—Mr. Goadby (London) will open a discussion on the present state of the scientific basis of the prophylaxis of dental caries; Mr. Turner (Edinburgh) and Mr. Waggett (London) will open a discussion on odontogenic suppurative maxillary and nasal sinusitis and their complications. Among the papers to be read are the following:—Mr. Colyer (London): On the influence of the feeding of infants and of adenoids on the deformation of the dental arch. Mr. Hopewell-Smith (London): Some recent researches in dental and oral pathology. Mr. Payne (London): A note on the pathology of the so-called dentigerous cyst. Mr. Turner (London): Normal movements of the remaining teeth after extractions. Dr. Wallace (London), the prevention of dental caries.

Section of Hygiene and Immunity.—Dr. Fowler (Manchester) will open a discussion on the sanitary uses of ozone. Dr. Sommerville (London) will read a paper on the teaching of hygiene.

Section of Military and Naval Sanitary Services.—Colonel Macpherson (London) will open a discussion on the necessity of uniformity in the use of diagnosis tallies in different armies.

Section of Maritime Medicine and Tropical Diseases.—Dr. Lamb (Kasauli) will open a discussion on the etiology and epidemiology of plague; and Drs. Ruffer and Willmore (Alexandria) will open one on the annual epidemics of dysentery during the Mussulman pilgrimage.

The general secretary of the congress is Mr. Em. de Gross. Applications relative to the congress should be addressed up to August 24th to the Secretariate, VIII Esterhazt utca. 7, Budapest; after that date they should be addressed to the general offices of the congress.

EXCURSIONS.

Excursions to various places of interest have been arranged. Among the places to be visited are Kolozsvár, the ancient capital of Transylvania; Marosujvár, with its salt mines, lighted by electricity; the High Tatra, described as "the El Dorado of tourists"; the famous ice-cavern of Dobsina; Lake Bala, often called the Hungarian sea; the Lower Danube; Constantinople, Athens, Corfu, and Trieste; Bosnia-Herzegovina, Dalmatia, and the Hungarian littoral. Applications relative to lodgings and excursions should be addressed to the Central Travelling-Ticket Office, IV, Vigado-ter. 1, Budapest, Hungary (Telegraphic address, Menetjegyiroda-Budapest).

OTHER MEETINGS.

The International Medical Press Association will hold its general meeting at Budapest before the congress.

The Permanent Bureau of the International Bureau for the Protection of Infancy will meet at Budapest on August 28th.

MODERN PATHOLOGY AS ILLUSTRATED AT ST. BARTHOLOMEW'S HOSPITAL.

PATHOLOGY has greatly broadened its horizon during the past two decades, and the new block now provided at St. Bartholomew's Hospital is striking testimony to the extent and significance of the change. The building was formally declared open on May 7th by the Lord Mayor of London, the brief ceremony concluding in the Great Hall of the hospital. A short address was there delivered by the Treasurer of the hospital (Lord Sandhurst), and a golden key presented to the Lord Mayor as a memento of the occasion by the architect (Mr. E. B. I'Anson). The new premises were then visited by the general company, and tea served at tables round the fountain in the quadrangle, where a band was playing. In his address Lord Sandhurst observed that exactly 700 years had passed since the date of the first recorded public transaction between the Lord Mayor of London and St. Bartholomew's Hospital. This was in the reign of King John, and took the form of a visit from the City representative of the time—Henry FitzAylwyn—to make arrangements with the hospital for the use of certain land near it as a burial ground for citizens who might die during the general interdict proclaimed A.D. 1208.

Another link with the past which Lord Sandhurst did not specifically mention is that the new building occupies the site of the house which Joanna Astley, nurse to King Henry VI, rented from the hospital on her retirement. It stood just opposite the Church of St. Bartholomew the Less—the church of the hospital and of the parish which it constitutes—on the right hand side of the principal entrance of the hospital, commonly known as Henry VIII's Gateway. This house later on gave place to the row of shops, occupied by instrument makers and medical booksellers, familiar to so many generations of St. Bartholomew's students. Among them was a precursor of the modern tea shop—one which, even thirty years ago, when medical students were still esteemed "rowdy," was a formidable rival to "Bell's," "The Vi," and the College dining-hall itself. All of them have now disappeared, their place being occupied by the new pathological block, the library and museum, and the new out-patient entrance. With the exception, therefore, of the frontage of the new Post Office, the whole of the east side of Smithfield and Giltspur Street from Little Britain to Newgate Street is now faced by hospital buildings.

The new block is a building of six stories if the basement is included in the count, as it should be, since it is of an important character, has a separate entrance, and provides accommodation for the seemly keeping of the dead pending interment. Its arrangements include a waiting-room and a small mortuary chapel where bodies can be viewed by coroners' juries or friends of deceased patients. Communicating with this chapel by a short passage is a mortuary proper, this being provided with a refrigerating apparatus capable of preserving for an indefinite period as many as eighteen bodies, and a special lift by which bodies can be raised into the *post-mortem* department. This is on the highest story, its principal room being provided with top lights, six necropsy benches, and adequate supplies of water sprays and washing troughs. It is an excellent room which will both minimize the unpleasantness inevitably attaching to *post-mortem* investigations and facilitate accurate and informing work.

The other four floors of the building provide accommodation (1) for pathology in the old sense of the term, (2) for that clinical pathology which often nowadays helps so greatly to elucidate diagnosis and direct and assist treatment, (3) for chemical pathology which is still in its infancy, (4) for tutorial work and for conferences between members of the staff engaged in the general work of the hospital. The fourth floor communicates by a bridge corridor with the museum, and thence with the general library, the school buildings, the resident's quarters, and the out-patient department. In several of the rooms are tablets bearing the names of persons in whose memory they have been equipped, and one is appropriately dedicated to the pathologist Kanthack, whose death some twelve years ago was such a grave loss to St. Bartholomew's, to Cambridge, and to science in general.

Generous as are the proportions of the building, it is evident nevertheless that the amount of space to be devoted to each particular object has been carefully thought out. For this reason the mere multiplicity of the rooms and their size is a striking object lesson in the extent of the work now expected of the pathological department of a great hospital. Better evidence still, perhaps, is afforded by the arrangements which have been made for the conduct of the work in this building. As a whole it is in charge of Dr. Andrewes, pathologist of the hospital, whose principal assistant is Dr. Mervyn Gordon. These two officers have as lieutenants six trained pathologists, two of whom will devote themselves entirely to investigations connected with clinical work of the hospital and researches necessitated by it, while the others will give part of their time to similar occupation and part to the training of students who have still to pass their examinations, or of those who require special pathological instruction in order to fit them for their duties in the wards. The general routine work will be done by pathological clerks, one of whom is attached to each physician and each surgeon and to the heads of special departments. Each of them is provided either with a special bench in a general laboratory or a separate room in which to prepare his reports on ward specimens, the results being tested and controlled by Dr. Andrewes's general assistants. Altogether, therefore, there will be some twenty-five men constantly engaged in pathological inquiry in this building, apart from general students. The fact that it is now considered necessary that every member of the treating staff of a hospital should be provided with a pathological clerk of his own brings out perhaps more vividly than would anything else the repute in which modern pathological methods are held, and the reliance which physicians and surgeons alike are nowadays disposed to place upon the information supplied to them by laboratory methods. It is not so long ago that the whole of such work was everywhere represented by a stand of urine-testing tubes and possibly a microscope on a side table in a ward. On this account, apart from its interest to pathologists in particular, the building is well worth a visit. For the general observer its outstanding features perhaps are the thoughtfulness of the arrangements for sparing the friends of deceased patients all unnecessary pain, and the mine of invaluable information represented by the room in which the clinical and pathological records of the hospital are stored and classified. Undoubtedly this building will do much to promote the chances of successful treatment in the wards, and go far towards ensuring the utilization of scientific methods among the general practitioners of the future.

The funds out of which it has been erected have been supplied, we understand, partly by friends of the hospital and partly by supporters of the school, while all rooms to be used mainly for tutorial purposes have been equipped entirely from the latter source. At one time it seemed as if the plan of rebuilding St. Bartholomew's piece by piece was not particularly wise, but it is now clear that by adopting it the institution as a whole will eventually be much more up to date than it would have been had all its parts been rebuilt simultaneously. It is to be hoped that the funds necessary to carry out the further changes in view will soon be forthcoming.

AN Egyptian League against Tuberculosis was formed at Alexandria in 1902. Beginning with one dispensary, it has now three, all of which are doing good work. Funds are being accumulated for the establishment of a sanatorium. The President of the League is Dr. J. Schiess Pasha. A movement for the formation of a similar organization in Cairo was suggested three years ago, but so far nothing has come of it.

MESSRS. SIEMENS BROTHERS AND CO., Caxton House, Westminster, have issued a supplement to their Electro-Medical Catalogue containing particulars of various types of switchboards for use in rapid and instantaneous radiography. The feature of chief interest about them is that they can be added to ordinary *x*-ray outfits, and by merely setting the time relay and closing the switch the apparatus becomes ready for rapid work. This will be appreciated by the medical man who, after using his tube for treatment or for screen observation, finds it necessary to make a short exposure. It is essential, however, that existing outfits, to be eligible for this additional convenience, should have at least a 16.-in. spark induction coil, and a triple Wehnelt interrupter.

UTERINE CANCER.

APPEALS BY THE BRITISH MEDICAL ASSOCIATION.

At the Annual Meeting of the British Medical Association at Exeter in 1907 the Section of Obstetrics and Gynaecology adopted a resolution requesting the Council of the Association to appoint a committee to consider the best means of disseminating knowledge of the importance of the early recognition of uterine cancer. That committee presented a report which was considered and generally approved by the same Section at the Annual Meeting of the British Medical Association in Sheffield in 1908.

At its meeting on April 28th the Council of the British Medical Association approved the publication of the following appeals to the medical profession and to midwives and nurses respectively.

A.

An Appeal to Medical Practitioners to Promote the Earlier Recognition of Uterine Cancer.

The attention of all Medical Practitioners is directed to the necessity of emphasising the curability by operation of uterine cancer in its early stages.

The adoption of a more extensive operation by the abdominal route has made it possible to deal successfully with cases hitherto regarded as inoperable, and to remove more of the pelvic cellular tissue as well as a portion of the vaginal walls; it is in these situations that recurrence is prone to develop.

Many patients now present themselves for examination and treatment when the disease is considerably advanced, and it is hoped that by a widespread and accurate knowledge of the early signs and symptoms the number of such patients will gradually diminish.

Special attention is directed to the following:

1. Cancer of the uterus is at first a local disease.
2. Cancer of the uterus is often a curable disease.
3. Operation is the only satisfactory method of treatment.
4. The earlier the disease is recognised the more hopeful are the prospects of treatment.
5. The risk of operation in early cases is slight, and the chance of permanent cure is good.
6. The recognition of early cancer is not usually difficult, and the disease should not be overlooked by the medical attendant.
7. A medical practitioner who fails to make a physical examination of a patient exhibiting any of the symptoms of uterine cancer incurs grave responsibility.
8. Treatment of symptoms without a physical examination is unjustifiable.
9. Early cancerous ulcers should not be treated with caustic; their appearance becomes masked, and valuable time is lost.
10. It is an error to wait and observe in order to arrive at a diagnosis.
11. In doubtful cases a diagnosis must and can be made in a few days.
12. To examine, to diagnose, and then to treat, should be the rule in all cases.

Symptomatology.

Uterine cancer is at first a painless disease which does not affect the general nutrition.

The early symptoms of cancer are:—Irregular bleeding of any description, even if there be only traces; bleeding post coitum; and watery, blood-tinged discharge. There may be no loss of strength or wasting, nor any condition to alarm the patient. Pain, wasting, profuse bleeding, and foul discharge, indicate advanced disease.

As the majority of cases occur between the fortieth and fiftieth year, the symptoms are too often regarded by the patient as due to "change of life." The medical attendant should not accept this assumption until he is satisfied that cancer does not exist.

Bleeding, however slight, occurring after the menopause, should give rise to suspicion that cancer is present.

Examination.

If a patient with any of the above symptoms comes for advice, a careful visual and bi-manual examination must be made before any treatment is recommended.

Should a patient refuse to be examined—and this is exceptional when the situation is explained—the medical attendant should decline any further responsibility, and no treatment should be advised. The examination should be made, even if bleeding is present, as valuable time may be lost by postponement until the hæmorrhage has ceased.

It is most important to observe rigid aseptic precautions in all manipulations.

In the examination, the condition of the vaginal portion of the cervix and of the cervical canal should be carefully noted.

In the early stages new growth may be found on the surface of the vaginal portion of the cervix, in the lining of the cervical canal, or in the substance of the cervix. Any prominence on the surface of the vaginal portion or any ulceration, *i.e.*, a definite loss of substance, should at once arouse suspicion. A nodule or nodules, hard, inelastic, or irregular in outline, felt in the substance of the cervix, suggest the presence of cancer. If the whole cervix be affected, the relative hardness as compared with the soft elastic body is pronounced.

The detection of high-lying cervical cancers, and cancers of the body of the uterus, is only possible after curettage or digital exploration.

The signs common to the early stages of cancer of the cervix uteri are:—

(1) The definite occurrence of new growth on the surface of the vaginal portion of the cervix, in the lining of the cervical canal, or in the substance of the cervix;
(2) Friability;
(3) Bleeding on manipulation.

(1) The definite occurrence of new growth on the portio vaginalis or in the cervical canal cannot fail to arouse suspicion. When, however, thickening of one lip or a portion of one lip of the cervix exists, the nature of the growth is difficult to determine if the mucous covering be still intact. It is then necessary to remove a portion of the affected tissue and examine it under the microscope.

(2) Friability is a sign of the greatest importance, and may be tested by the finger-nail, curette, uterine sound, or an ordinary long probe. Degrees of friability exist in early cases, depending upon the amount of interstitial tissue contained in the growth.

(3) The occurrence of free bleeding after the slightest manipulation is, when combined with friability, a valuable diagnostic aid.

Forms of Uterine Cancer.

Vaginal portion of the cervix.

(1) *Infiltrating type.*—In this type, one lip, or a portion thereof, or even the entire vaginal portion of the cervix, is infiltrated with cancerous growth. Ulceration occurs early from the surface inwards, or necrosis may begin in the centre, and opening on the surface, lead to the formation of a deep ulcer, with undermined edges.

The growth is somewhat hard in consistence, but is still friable if tested with the probe, curette, or finger-nail.

(2) *Papillomatous or polypoid type.*—This includes the so-called cauliflower excrescence, and is characterised by the growth from the margin of the os externum of a rounded or flattened tumour, varying in size, which may or may not have a definite stalk. It has a papillary surface, bleeds readily, and is very friable. More rarely it resembles a bunch of soft papillomata. Portions of the growth, pale red or greyish-yellow in colour, are easily detachable on examination.

(3) *Superficial flattened type.*—This is characterised by a flattened growth on the vaginal portion which tends to spread over its surface. It is prone to early ulceration and is frequently seen clinically as an ulcer. The lip or portion affected is thickened

The ulcer has a sharply defined, raised edge, indented at places, yellowish-grey, finely granular surface, a moderate amount of loss of substance, and an infiltrated base. It bleeds readily on touch and the amount of hæmorrhage is entirely out of proportion to the amount of injury inflicted. The finger-nail can detach small pieces from its surface.

Cervical Canal.

(1) *Superficial type.*—The inner surface of the cervical canal is lined by an irregular papillary growth which at first attacks the substance of the cervix superficially. As the growth increases portions of it may protrude through the external orifice of the cervical canal. When ulceration occurs the superficial portion of the growth is shed, with consequent hollowing out of the cervical canal, whilst the remainder of the periphery of the cervix is more or less thickened by infiltration. Where the external os uteri is narrow the process may be hidden, or patency of the os uteri may be produced by destruction of its margin, whilst in uteri where the os is already wide a crater-like cavity is formed.

(2) *Infiltrating type.*—The cancerous infiltration proceeds from the mucous membrane deep into the tissues of the cervix, and thus the whole cervix becomes thickened and enlarged, or the enlargement and infiltration may be limited to one or more portions of the cervical walls. Necrosis may commence on the mucous surface, or in the centre of the infiltrated area and may lead to extensive destruction of the cervical tissues.

Probably the majority of cancer cases which are overlooked are examples of disease affecting the lining of the cervical canal or the tissues of the wall of the cervix.

Cancer beginning in the cervical canal is not difficult to detect where the os uteri is dilated as in many multiparæ. The finger passed into the cervical canal feels irregular elevations or nodules from which portions may be removed. Free hæmorrhage follows this manipulation. Difficulty arises where the os uteri is not dilated and the disease is hidden. A sound carefully passed into the cervical canal may give the impression of impinging on an irregular nodular surface, or friable tissue may be removed by the curette. Free hæmorrhage following such manipulations is a suspicious sign. Thickening and hardening of the cervix may be detected by a rectal examination, which is most helpful in detecting cancerous nodules in the cervical walls, and should always be made in such cases.

Body of the Uterus.

If the vaginal portion of the cervix, the cervical canal and the cervical walls have been proved to be free from disease attention must be directed to the body of the uterus. The uterus may not be enlarged, although a cancerous growth exists in its interior. Usually, however, there is some increase in size, which in advanced cases may be considerable.

Microscopical Investigation.

In doubtful cases, if there be a suspicious hard nodule, or erosion, or ulcer on the external os uteri, a piece including a boundary of healthy tissue should be excised.

The vulva and vagina having been thoroughly cleansed, the posterior vaginal wall should be retracted by means of a speculum, and the cervix pulled slightly downwards with a volsellum. A wedge-shaped piece, the size of a pea or bean, including *a margin of healthy tissue* should be excised with a sharp knife.

The bleeding which follows this little operation should be stilled by the insertion of one or two sutures, or by firm tamponade with a strip of gauze. An anæsthetic is not essential. The patient should be kept in bed for 24 hours.

The tissue removed should be transferred to a small stoppered bottle filled with absolute alcohol or methylated spirit, and forwarded without delay to an expert in uterine pathology.

Where the cancer originates in the body of the uterus or in the cervical canal, it is frequently possible by using the curette, to obtain a sufficient amount of tissue for examination without the aid of anæsthetics. If this cannot be done, it may be necessary under an anæsthetic to curette the whole interior of the uterus and cervix, special attention being paid to the region of the tubal orifices.* All fragments should be collected, including those which may have been washed out. The douche, if employed, should consist of sterilised water or a weak solution of corrosive sublimate (1 in 10,000), as carbolic acid and lysol interfere with the staining of the cells.

The fragments should be transferred to a stoppered bottle filled with absolute alcohol or methylated spirit.

If the expert's report is favourable the patient will be reassured, if unfavourable immediate operation is imperative.

The Operation.

The question of operation is best decided by the operator, who may require to examine under anæsthesia.

To Recapitulate.

(1) Attend to all symptoms suspicious of cancer, and instruct the patient on their importance;

(2) Examine immediately all cases of bleeding or abnormal discharge;

(3) Make a definite diagnosis and do not wait for the disease to develop;

(4) Urge immediate operation if the diagnosis is established.

The practitioner who diagnoses cancer in an early stage, when operation offers a probability of cure, renders a service to his patient as great as that rendered by the operator.

B.

An Appeal to Midwives and Nurses in order to Promote the Early Recognition of Cancer in the Womb.

Cancer of the Womb is a very common and fatal disease in women, but *it can be cured by operation when it is recognised early.* A woman sometimes tells a nurse or midwife her ailments before she speaks to a doctor, and the nurse or midwife has then an opportunity of aiding our crusade against this terrible disease.

Cancer may occur at any age, and in a woman who looks quite well and who may have no pain, no wasting, no foul discharge and no profuse bleeding.

To wait for pain, wasting, foul discharge, or profuse bleeding is to throw away the chance of successful treatment.

The early signs of Cancer of the Womb are—

1. *Bleeding*, which occurs after the change of life.
2. *Bleeding* after sexual intercourse, or after a vaginal douche.
3. *Bleeding*, slight or abundant, even in young women, if occurring between the usual monthly periods, and especially when accompanied by a bad-smelling or watery blood-tinged discharge.
4. *Thin watery discharge* occurring at any age.

The nurse or midwife who is told by a patient that she has any of these symptoms should insist upon her seeing a medical practitioner in order that an examination may be made without delay. By doing so she will often help to save a valuable life, and will bring credit to herself and to her calling.

* Special care should be taken in using the curette as the cancerous uterus is easily perforated.

Nova et Vetera.

LEOPOLD AUENBRUGGER.

THE DISCOVERY OF PERCUSSION.

PERCUSSION as a means of testing whether walls were solid or covered hiding places, whether barrels were empty or full, and for a number of other purposes in ordinary life, must have been in use since the dawn of civilization. The whole art and mystery of the method as applied to tombs is expounded in *Edwin Drood* by Durdles to Mr. Jasper in the vaults of Rochester Cathedral:

"Now, lookee here. You pitch your note, don't you, Mr. Jasper?"

"Yes."

"So I sound for mine. I take my hammer, and I tap. . . . I tap, tap, tap. Solid! I go on tapping. Solid still! Tap again. Holloa! Hollow! Tap again, persevering. Solid in hollow! Tap, tap, tap, to try it better. Solid in hollow; and inside solid, hollow again! There you are! Old 'un crumbled away in stone coffin in vault!"

It is surprising, therefore, that no one seems to have thought of using percussion of the human body as a means of diagnosis till its utility was discovered by Auenbrugger in the middle of the eighteenth century. The centenary of his death is to be commemorated by the University of Vienna on May 18th. A short account of the man is therefore opportune and may be of interest to some.

Joseph Leopold Auenbrugger was born at Gratz, in Styria, in 1722. His father is said to have been an innkeeper; however this may be, he was a citizen of credit and renown. Both he and his wife were held in high esteem for their blameless character and charitable disposition. They gave their son a solid education, and he had the advantage of growing up in a home atmosphere of the best kind. In due course he studied medicine at the University of Vienna, where he was a pupil of Van Swieten, who had sat at the feet of Boerhaave at Leyden, and on whom the mantle of that famous physician was believed to have fallen. After taking his degree, Auenbrugger settled in Vienna, but he does not seem to have been a teacher in the university. From 1751 to 1762 he was attached to the Spanish Hospital in Vienna, first as assistant, afterwards as physician. It was in 1754 that he noticed the difference of sound produced by striking the chest wall in various places. He pursued the line of clinical research thus opened to him for seven years, and in 1761 he embodied the results of his observations, "proved," in his own words, "again and again by the testimony of his own senses in the midst of labours and discouragements," in a work bearing the following title:

LEOPOLDI AUENBRUGGER
Medicinae Doctoris
In Caesareo Regio Nosocomio Nationum
Hispanico Medici Ordinarii.
INVENTUM NOVUM
ex
PERCUSSIONE THORACIS HUMANI
PECTORIS MORBOS
Detegendi.
Vindobonae,
Typis Joannis Thomae Trattner, Caes. Reg.
Majest. Aulae Typographi.
MDCCLXI.*

In the preface he says that he wished to call attention to a new method of detecting diseases of the chest which he had discovered. He goes on to say:

In making public my discoveries respecting this matter, I have been actuated neither by an itch for writing nor a fondness for speculation, but by the desire of submitting to my brethren the fruits of seven years' observation and reflexion. In doing so, I have not been unconscious of the dangers I must encounter, since it has always been the fate of those who have illustrated or improved the arts and sciences by their discoveries to be beset by envy, malice, hatred, detraction, and calumny.

He confesses that there are still many defects in his work which can be remedied only by further experience and observation. After describing the sound produced by striking the chest of a healthy person in different parts, he gives a detailed account of the method of practising percussion. The thorax should, he says, be struck slowly and gently with the points of the fingers brought close together and at the same time extended. It may be noted that he recommends that while this is being done the shirt should be drawn tight over the chest, or the hand of the operator should be covered with a glove of unpolished leather.

If the naked chest is struck by the naked hand, the contact of the polished surfaces produces a kind of noise which alters or obscures the natural character of the sound.

Had he but applied his ear as well as his hand, he would have anticipated Laënnec. He proceeds to describe the dullness of the percussion note caused by the greater or less diminution of the volume of air in the chest due to compression of the lung either by effused fluid or solid growth. He proved the value of the method by experiments made with empty or partly full casks, and with a dead body, into the thoracic cavity of which fluid had been injected. He also closely compared the information yielded by percussion with the state of things found after death in cases of "scirrhus" of the lung (which he explains to be "the degeneration of the natural spongy substance of the organ into an indolent, fleshy mass"), vomica, empyema, pleural effusion, dropsy of the pericardium, extravasation of blood into the cavity of the pleura or pericardium, and aneurysm of the heart. He came near to the discovery of auscultation, for he says: "If the hand is laid over the situation of a vomica, as revealed by percussion, and the patient should cough, you will clearly distinguish the rattling of pus inside the chest. (*Strepitum puris manifeste distingues in pectore interno.*)" Auenbrugger concludes with the wish: *Cedant haec miseris in solatium, veris autem medicinae cultoribus in incrementum artis: Quod opto.*

Auenbrugger's teaching fell on deaf ears; his discovery was ignored by those occupying the high places of medicine in his day, even by his own teacher, Van Swieten. The only physician of standing in his own day who appreciated the value of the discovery was Stoll, who succeeded De Haen as Professor at Vienna. The method was either confused with succussion, which is mentioned by Hippocrates, or not mentioned at all by contemporary writers. The lot which befell Auenbrugger's little book is an example of the attitude of the "superior person" towards anything new that does not emanate from his own lofty sphere, which has been one of the chief influences that have retarded the progress of medicine. It was not till the *Inventum Novum* was translated into French by Napoleon's physician, Corvisart, in 1808, that Auenbrugger's discovery obtained general recognition. But the fame thus gained by the author came too late, for he died on May 17th or 18th, 1809. It had previously been translated into French by Rozière of Montpellier, and went through two editions. But it was practically unknown till Corvisart stamped it with the the impress of his great name, at the same time giving Auenbrugger the whole credit of the discovery. His wife had died a year before the French translation of his book appeared, and after that event he seems to have ceased to take any interest in the things of this life. He might have said as Johnson said to Lord Chesterfield when at the last moment that nobleman came forward as the patron of his *Dictionary*:

The notice which you have been pleased to take of my labours, had it been early, had been kind; but it has been delayed till I am indifferent and cannot enjoy it; till I am solitary and cannot impart it; till I am known and do not want it.

For notwithstanding the neglect of his *Novum Inventum* it must not be thought that Auenbrugger was either unappreciated or disappointed. His heart was in his professional work, and according to a biographer "his life was a model of honesty, philanthropy, genuine devotion to the science and art of medicine, and of kindly regard towards the poor as well as the rich." He had a large practice and was in favour with the Empress Maria Theresa and afterwards with the Emperor Joseph, who in 1784 ennobled him, bestowing upon him the title of Edler von Auenbrugger. This was not, however, on account of the discovery which gives him a lasting place in the history of medicine, but in recognition of his services to the public and his skill in physic. To the last he collected fresh proofs of the clinical value of percussion. He wrote some other treatises, but these are of comparatively little importance. The book on percussion was translated into English by Forbes in 1824.

He had a happy home life and had two accomplished daughters. He was fond of music and composed an opera

called the *Rauchfangkehrer*, which so pleased the Empress Maria Theresa that she asked him to write another. He declined, however, saying that he had something better to do than write operas.

Auenbrugger was interested in philosophy and general literature, and was the owner of a library which was considered large in those days.

As little is known about Auenbrugger, it is right that acknowledgement should be made of the assistance derived in the production of this brief sketch from Dr. C. N. B. Camac's *Epoch-Making Contributions to Medicine and Surgery, etc.*, and a paper entitled "Auenbrugger and Laënnec, the Discoverers of Auscultation," by Dr. Edward O. Otis, of Boston, published in the *Boston Medical and Surgical Journal* of September 22nd and 29th, 1898.

INDIA IN 1907.

REPORT OF THE SANITARY COMMISSIONER.

THE report for the year 1907, which closely follows its predecessors in scope and contents, has been drawn up by Lieutenant-Colonel C. J. Bamber, I.M.S., Officiating Sanitary Commissioner with the Government of India, the statistical statements and tables, which compose more than half of the volume, being compiled by Major S. P. James, M.D., I.M.S. Certain changes have been made in the construction of these, which will be referred to below, and a few diagrams have been introduced illustrating the prevalence of plague in India and several provinces. The report consists mainly of a comment on the statistics collected during the year, relating to the general population, troops, and prisoners, with some remarks on the circumstances, climatic and otherwise, of which they are the representatives and effects. Information regarding the progress of research into the pathology and etiology of tropical diseases is scantier than in recent reports. Work done on enteric and paratyphoid fever is summarized at some length, and references are given to papers published on some other subjects. The report as a whole, while its methodical arrangement and lucid handling of figures are highly commendable, is more arithmetical and less expository than is desirable.

GENERAL CHARACTER OF THE YEAR.

The year presents a remarkable contrast to the preceding year. The main feature of 1906, as narrated in the BRITISH MEDICAL JOURNAL (vol. ii, 1908, p. 515), was a reduction in plague mortality, associated with an increase in the number of deaths due to fevers, bowel complaints, cholera, and small-pox, depending on conditions unfavourable to public health. In 1907, on the contrary, the excessive prevalence of plague raised the death-rates to a high level, while the ordinary causes of Indian mortality underwent considerable abatement. The climatic conditions were in some respects abnormal. The spring rainfall in Northern India was excessive, and caused damage to the early *(rabi)* crops. The monsoon rains arrived late, and were scanty in most provinces, causing shortage of the late *(kharif)* crops, which constitute the principal produce of the year.

This partial failure of crops resulted in general dearness of food, and gave rise to scarcity, almost amounting to famine, in many districts. The rains left off earlier than usual, and the months of October, November, and December were comparatively dry. The production of fevers and bowel complaints was on this account considerably diminished, and these ordinarily account for about 60 per cent. of Indian mortality. Politically the year was tranquil, and neither European nor Indian troops were employed on service either within or beyond Indian limits. Social conditions remained unaltered, and the year was exempt from catastrophes—floods, cyclones, or earthquakes—which sometimes occasion great loss of life.

VITAL STATISTICS OF THE GENERAL POPULATION.

Birth registration has been extended in Upper Burmah. There are still areas in several provinces where registration has not been introduced. Registration by a professional agency has been experimentally tried in the district of Burdwan (Bengal), with the result that while the number of deaths recorded by the ordinary agency was found to be fairly accurate, the assigned causes were largely erroneous. No change appears to have been made during the year in the agencies employed for recording births and deaths or testing the accuracy of the returns. There was a slight decline in the birth-rate of British India, from 37.80 to 37.65, the rate reckoned on the census of 1901 for the preceding quinquennium being 39 20. The highest rate (52.46) was returned by the Central Provinces, and the lowest (30.8) by Madras. The birth-rate exceeded the death-rate in several provinces, and fell short of it in five, the defect in the Punjab amounting to 21.3. The death-rate of the year was 37.18, against 34.73 in 1906 and 32.91 in the preceding quinquennium. Excluding plague, the death-rate of 1907 was 32 02. The Punjab yielded the terrible rate of 62.10, nearly one-half of which was caused by plague. The Gujrat district had a mortality of 106.67, and one of its towns (Dinga) of 144.31. The lowest rate (24.3) was in Madras. Infantile mortality was somewhat lower—221.72 and 209.33 for males and females per 1,000 born, against 228.30 and 217.52 in 1906. This recession in a bad plague year would seem to suggest that infants under one year of age are not very liable to plague infection.

In all provinces the number of male infants born exceeded that of females, and in all except the Punjab the death-rate of male infants was in excess.

Details of registration in each province are given with great and, it must be remarked, unprofitable prolixity.

PREVALENT DISEASES.

Of the aggregate deaths, 53 per cent. were registered under the head of fevers, 14 of plague, 5 of cholera, 3 of bowel complaints, and 1 of small-pox, leaving 24 for all other causes. This rough classification is far from accurate, as the Burdwan inquiries and other special investigations show, but it is the best that can be got in India as yet. There was a slight rise in the mortality attributed to "fevers," but it is surmised that many fatal cases of plague found their way into this category. It is assumed that only about 25 per cent. of "fevers" are malarial. This is a conjecture founded on some inquiries conducted by Rogers and others. It is impossible to say with certainty whether in 1907 malarial fevers were in excess or defect, but the statistics of troops and prisoners indicate the latter. The highest fever rates were returned by the United Provinces (28.31), North-Western Frontier Province (27.44), Coorg (26.95), and Bengal (23.18); and the lowest, Madras (7.8), and Upper Burmah (7.53). The mortality caused by kala-azar in Assam continues to decline. A report has been submitted by Captain S. R. Christophers, I.M.S., and Dr. Bentley, regarding malaria and blackwater fever in the Duars; but no information is given about the conclusions arrived at by these observers. A report has also been submitted respecting the relation between the prevalence of malarial fever and defective drainage in the Presidency division of Bengal, but the nature of it is not indicated. Reference is made to "antimalarial operations" carried out in some towns of Bengal, the Central Provinces, and Bombay, but the character and effect of them are not described. The distribution and sale of quinine in 7-grain packets is continued, but evidently on a limited and decreased scale.

The number of deaths attributed to plague rose from 356,721 to 1,315,707, the highest aggregate recorded since the introduction of the disease into India in 1896, the respective rates being 1.33 and 5.16. The Punjab heads the provincial returns with the enormous rate of 30.27; the United Provinces come next with 6.90, then follows Bombay with 5.06, and the Central Provinces with 3.18. In the remaining provinces the rates were smaller though none were entirely exempt. There was an increase of mortality in all the provinces except Eastern Bengal and Assam, Ajmere-Merwara, and Coorg, which suffered to a very slight extent. The immunity of Eastern Bengal and Assam is held to be remarkable, and worthy of special investigation. The report is silent as regards preventive measures, except that an outbreak of pneumonic plague in Darjeeling, introduced from Chupra and resulting in 7 deaths, is said to have been stamped out by "stringent measures," the nature of which is not stated. The Bombay Bacteriological Laboratory issued 620,923 doses of antiplague vaccine against 176,651 in 1906. Reference is made to instances of success attending the use of the prophylactic, but particulars are not given, nor of experi-

ments made in this laboratory regarding the use of rat and flea destroyers. The diagrams to which allusion has been made show the prevalence of plague in India, Bengal, the United Provinces, the Punjab, and Bombay during the years 1898–1907 inclusive. The remarkable seasonal phenomena of the disease are well brought out. A fall towards the close of the year is said to augur favourably for 1908.

There was a marked fall in cholera mortality in all provinces except Bengal, Coorg, and Lower Burmah. The death-rate for British India as a whole was 1.81, against 3.05 in 1906. Bengal had a rate of 4.07, Eastern Bengal and Assam of 2.58, Madras of 2.2, and Lower Burmah of 1.42; the remaining provinces were below the average. Statistical facts relating to the prevalence of the disease are given in great detail, but no additional light is thrown on causation, pathology, or treatment. There was a slight decline in the mortality caused by dysentery and diarrhoea, the death-rate for India being 1.25, against 1.35 in 1906. Small-pox mortality was also lower—0.46 against 0.48. The deaths of children under 10 years of age amounted to 69.70 of the total number; the high rate of 9.15 was recorded in the town of Barpeta, Assam, the head quarters of the Mahaparushiyas, "who on religious grounds object to vaccination." It is stated that their objections are yielding to persuasion, and that small-pox is diminishing. In the Punjab the death-rate of towns in which vaccination is compulsory was 0.93, compared with 1.72 in towns in which it is optional.

THE GAOLS.

The improvement in sickness and death-rates is progressive, and indicates an advance in "the arrangements for counteracting the influences of adverse climatic conditions and for preventing the spread of communicable diseases." The average number of prisoners was 107,675—2,407 less than in the preceding year. The death-rate, including the Andamans Settlement, was 18.51, the lowest on record. Excluding the Andamans, where convicts live under special conditions, and where the death-rate was 23.59, the rate for Indian gaols was 17.72, against 19.27 in 1906 and 21.12 in 1901–5. There was also a reduction in the rate of admissions into hospital—624 against 658. As usual, the chief causes of sickness were ague, dysentery, abscesses, ulcers and boils, and diarrhoea; and of deaths dysentery, phthisis, and pneumonia. There was a decline in the admission-rate of intermittent fever and a slight rise in the death-rate, the figures being 190.2 and 0.79, against 207.2 and 0.72 in 1902. The admission-rate and death-rate of remittent fever were unprecedentedly low, but the term does not indicate any definite type, and is to be supplanted in future reports by the entry "pyrexia of uncertain origin." Quinine prophylaxis is eagerly resorted to in all provinces, but the method employed varies considerably, and information regarding results is scanty.

Antimalarial measures are cursorily alluded to. Dysentery has never been less prevalent, and has never caused a lower mortality in the gaols of India than during 1907. The rates were 67.9 and 2.57, against 78.9 and 3.25 in 1906. There were fewer admissions and more deaths from diarrhoea, which is said to be more common and fatal among old and infirm prisoners. There was an increase in respiratory admissions and deaths, the mortality from pneumonia rising from 2.55 to 2.90. On the other hand, there was a satisfactory decline in phthisis prevalence and mortality, the rates falling from 8.8 and 3.21 to 7.5 and 2.74. Early detection and special open-air treatment are strongly recommended, and measures to this end are being adopted in many gaols.

The statistics of "anaemia and debility" are about the same as in previous years. There was a decrease in admissions and deaths from cholera (140 and 55 against 187 and 105), also from small-pox (65 and 6 against 82 and 9). There was an explosion of cholera in the Coimbatore Central gaol, in which 74 admissions and 32 deaths took place. The outbreak was considered to be water-borne. Plague, as might be expected, gave increased admissions and deaths (59 and 30 against 19 and 8). Most of the cases occurred in the prisons of the United Provinces, Punjab, Bengal, and Bombay. Sixty-five cases with 10 deaths were attributed to enteric fever, against 102 and 18. There was a reduction in the prevalence and mortality of influenza. Thirteen cases of cerebro-spinal fever occurred, 11 of which were fatal. Only 2 admissions from Mediterranean fever were registered. Fifty-six cases of epidemic dropsy with 5 deaths were returned, and 107 cases of beri-beri with 12 deaths. These diseases were made the subject of special investigation, and considerable doubt still prevails as to the differential diagnosis. An inquiry was also carried out by Captain Foster, I.M.S., regarding the prevalence and mortality of dysentery in Bengal gaols. "A proposal has been made to establish at Kasauli a subsidiary gaol to accommodate prisoners bitten by rabid animals." The returns only show 7 admissions from dog and jackal bites, with no death. Thirty cases of snake bite were admitted, two of which were fatal. Overcrowding still exists in many gaols of all the provinces; but efforts are being made to remedy this and many other sanitary defects.

EUROPEAN TROOPS.

The strength of the European army in 1907 was 69,332. Of this number, 11,689 were located in hill stations, and 3,515 in hill convalescent dépôts, 1,755 were marching, and 1,099 stationed at Aden. The health of the troops was excellent and the rates of admissions, constantly sick and deaths lower than in any preceding year. They were 756.4. 46.4, and 8.18, against 870.8, 51.4, and 10.43 in 1906, and 983.7, 60.7, and 12 11 in the quinquennium 1901–5. The invaliding rate was also lower. The decline in these rates was due to a decrease in all the chief causes of sickness and mortality. There has been a change in military administration. There are now two armies, northern and southern, in place of three commands and two divisions as formerly. This necessitates a recasting of health statistics, and renders a comparison with previous years difficult. This is the fourth alteration in the distribution of the army which has taken place since 1877, a circumstance which justifies the creation of definite and permanent geographical areas for purposes of statistical grouping and comparison. These, which are indicated on the map accompanying the report, possess the additional advantage of associating in the aggregate places similarly circumstanced as to physical and climatic characters.

There was a slight increase in the prevalence of influenza, which affected mostly troops stationed in the Indus Valley. Only 3 cases of cholera occurred, 2 of which ended fatally. This is the lowest number on record, excepting in 1899, when there were only 2 cases. There was also a decrease in small-pox, the admissions being 30 against 87, and deaths 1 against 4; 16 of the cases were in men who had not been successfully revaccinated. There was a great decrease in the prevalence of intermittent fever, the admission-rate having fallen from 176 to 152, and the number of deaths from 15 to 9. There was also a decrease in the admissions registered as remittent fever, a term which will not appear in future returns.

The admissions from "simple continued fever," though fewer than in 1906, were much more numerous than in previous years, owing to the more exact diagnosis of malarial cases. The term is to be discontinued, its place being taken by the formula "pyrexia of uncertain origin," which will include remittent fever as well. Antimalarial measures, including the prophylactic use of quinine, the use of mosquito nets, drainage, filling of hollows, destruction of larvae, "marching into camp" (the segregation of Europeans), sulphur fumigation, etc., are diligently carried out, and the intramuscular injection and prolonged administration of quinine undoubtedly minimize relapses. Only 5 cases were diagnosed as Malta fever. There has been a very satisfactory reduction in admissions and deaths from enteric fever, the rates being 13.1 and 2.77, the lowest recorded since 1888 and 1885 respectively. The subject is discussed at great length from the points of view of bacteriology, causation, and prevention. The importance of taking special action with reference to bacillus carriers is strongly insisted on. There is a standing committee on enteric fever which collects information and issues recommendations, and it is evident that every possible effort is being made to reduce the mortality caused by this disease in the European army of India. Only 8 cases of plague occurred with 3 deaths. A curious outbreak of multiple neuritis occurred at Poona, the causation of which is obscure. Dengue was much less prevalent, and bilharzia has nearly died out. The prevalence of phthisis was much the same as in previous years, and cases of pneumonia were

fewer, but deaths slightly more numerous. There was a decided abatement in dysentery admissions and deaths, and also in abscess of the liver. The fall in venereal diseases is progressive, and is attributed to moral influences.

There was less sickness and mortality among officers, the death-rate falling from 17.53 to 7.71. There was also considerable reduction in the sickness and death-rates of women and children. Altogether the record is one of improved health, due no doubt to the more favourable conditions of the year, but also, it is to be hoped, to more enlightened and strenuous sanitary efforts.

Native Troops.

The strength of the native army was 126,392. Of this number 9,030 were marching, 1,509 in Aden and other places outside India but in the Indian command, 749 in Colombo, 734 in Singapore, and 3,050 in China; 22,710 were located in hill stations. The admission-rate, 628.9; constantly-sick-rate, 21.7; death-rate, 6.27; and invaliding-rate, 5.76, were the lowest on record. The death-rate does not include deaths on sick leave or furlough; if these be added, the rate is raised to 8.51, slightly higher than that of the European army. There was a reduction in all the principal causes of sickness and mortality. There was a slight rise in influenza, which was specially severe in Quetta. Cholera fell from 94 cases and 62 deaths, to 34 and 24, and small-pox from 79 and 4 to 48 and 5. There was a decrease in admissions and deaths from ague and remittent fever, also in admissions from "simple continued fever," many cases registered as such being probably malarial. Twelve cases of kala-azar occurred, the diagnosis being confirmed by splenic or hepatic puncture. Typhus fever is rare among native troops, but 24 cases were returned as such with 4 deaths. Of these, 23 occurred in three regiments stationed at Peshawur. The infection appears to have been derived from mule corps drivers, who contracted the disease in the surrounding villages.

Twenty-six cases of relapsing fever were admitted of which 3 died. The spirillum was discovered in all of them. There were no cases in the European army. There was a rise in admissions and deaths from enteric fever, which numbered 182 and 44. The cases occurred in 84 regiments located in 53 stations, and in only 10 were more than 3 cases admitted. The increase is held to be due to more accurate diagnosis. The number of recorded cases of Malta fever also increased; 62 were diagnosed as such with 2 deaths; of these, 30 occurred in Rawal Pindi—28 of them in the 36th Sikhs. The blood of 39 goats which supplied milk to the Sikhs was examined by Captain Brayne, I.M.S., in the Kasauli Institute, and it was found that that 11 of them agglutinated the *Micrococcus melitensis*. Notwithstanding the increased prevalence of plague in India there was a diminution of admissions—85, with 56 deaths against 147 and 83 in 1906. In 66 stations where the disease was present the troops escaped. The admissions from scurvy and phthisis were about the same, but the death-rate of the latter was lower, amounting to 0.33 against 0.20 in the European army, and 3.07 in gaols. The death-rate of Gurkhas was 1.03. Efforts are being made to improve their barracks. Pneumonia and other respiratory diseases were more prevalent and fatal, especially in Upper India. Dysentery and diarrhoea were less prevalent, and there was a fall in the admission-rate from venereal diseases, which only amounted to 14.7. There were only 7 admissions for beri-beri, 6 of them in Aden. The admissions for guinea-worm (472) were mostly in Central India. There were none in the European army, but 438 in the prisons.

Vaccination.

There was an increase in the number of vaccinations performed during the year; greater in revaccinations than in primary operations. The percentage of success in both classes was higher, as also the number of operations done by each vaccinator. The rate per 1,000 of census population was 36.07, a rise; and the ratio to estimated births 44.36 per cent. The cost of each successful case was about the same. Each province has its dépôt for the manufacture of vaccine except the Central Provinces, where lymph is prepared at the head quarter stations of districts. Inoculation is still practised in some parts of Burma and Assam. The prevalence of plague interfered in many places with vaccination. A machine invented by Major Entrican, I.M.S., for filling tubes has been used with satisfactory result.

Sanitary Administration and Work.

No change of importance took place during the year in sanitary administration. The appointment of a sanitary engineer for the province of Eastern Bengal and Assam has been sanctioned. A sum of Rs.6,000 has been sanctioned in Burma for the erection of model sanitary works. The details in the report indicate sustained effort in prosecuting and maintaining sanitary works, and local bodies are spending money freely on current sanitary purposes. There has been a falling-off in the sale of manure in the Punjab, and sewage farming in Madras has not been attended with success.

Miscellaneous.

The number of pilgrims who left Bombay for the "Haj" was the largest on record. Special precautions were taken to prevent the exportation of plague. The disease broke out at Jeddah in January, but did not attain large dimensions or spread, and information regarding the health of the pilgrims is scanty. Interesting summaries are given regarding the work done in provincial laboratories, which have been reorganized and strengthened and are doing excellent work. A course of lectures with practical instruction has been arranged for hospital assistants in the Bombay bacteriological laboratory, and in the King Institute of Preventive Medicine instruction has been given to medical officers, sanitary inspectors, vaccinators, plague inspectors regarding the subject matter of their duties. Brief reference is made to special inquiries conducted during the year regarding plague, enteric fever, dysentery, malaria and blackwater fever, lathyrism, and gaol dietaries, and a list is given of scientific publications issued during the year. Mr. W. W. Haffkine, C.I.E., is now engaged in scientific research in the laboratory attached to the office of the Sanitary Commissioner with the Government of India.

LITERARY NOTES.

We regret to announce that the appearance of Lord Lister's *Collected Papers*, which were ready for publication, will be slightly delayed by a serious fire which broke out in the binding house of the Oxford University Press, near Aldersgate Street Station, on May 7th, and did damage estimated at £30,000. All the bound copies, except one or two, have been destroyed or damaged. Fortunately a number of unbound copies escaped destruction, but all the lithographic plates were burnt, and will have to be reprinted. We understand that special efforts are being made at the printing works at Oxford to replace the volumes that have been destroyed.

A new volume will be added this week to Messrs. Methuen's "New Library of Medicine." It is by Dr. Harrington Sainsbury, Senior Physician to the Royal Free Hospital, and is entitled, *Drugs and the Drug Habit: Chapters on the Dynamics of a Remedial Particle.*

The April number of *Janus* contains an article on malaria in Tropical America and among Indians by Dr. Otto Effertz of the Isthmus of Tehuantepec, Mexico, which, apart from its scientific interest, contains some interesting anthropological and historical notes. He says the natives themselves recognize that they suffer from malaria in a far more malignant form than foreigners. This they explain by the assumption that the latter have "stronger blood." When told it is because the foreigners take quinine and they do not, they do not believe it. They refuse to take quinine except in extremely small doses, as they say it hurts them. Their own healers preach the same doctrine, the argument being "Quinine is hot, fever is hot." According to Indian pathology and pharmacology, the primary classification of diseases is into "hot" and "cold"; in accordance with this remedies are divided into "hot" and "cold." The first law of Indian therapeutics is that the disease and remedy must be of different denomination—the opposite dogma to *Similia similibus curentur* of the homœopaths.

Therefore they treat malaria with "cold" purges, cold drinks, cold irrigations of the bowels, and so forth. The favourite internal drug is a nut called *cedrón*, powdered and mixed with *mescal*, a native whisky which is supposed to be "cold," whereas other alcoholic drinks are hot. If they do take quinine, they go at once into cold water so as to counteract the heat of the quinine. A term of insult for a regular doctor is, "He is a quinine doctor." They have the greatest belief in patent "pills of life," "pink pills," "pills of health," etc.; quinine pills, however, they reject by whatever name it is attempted to disguise them. Indians do not consult regular doctors; they only buy from them patent medicines which most of the regular practitioners sell. On the general question of malaria, Dr. Effertz says that, limiting the observations to natives, it might be said Africa has practically no malaria while the disease is rife in America. On the other hand, if only Europeans are taken into account, it might be said that Africa is full of malaria while America is practically free. He suggests that the reason why American malaria is milder as far as Europeans are concerned than African is that up to comparatively recent times Europe was a great field of the disease and, therefore, Europeans possess a fair amount of hereditary immunity—not enough to protect them against the strong African variety, but sufficient to enable them to resist the mild American disease. He explains the greater relative malignity of malaria as it affects Indians by the fact that in America malaria has been introduced or at any rate generalized in comparatively recent times. In Europe malaria is younger than in Africa, but older than in America. This, according to Dr. Effertz, explains why the disease is to Europeans far more malignant in Africa than in America. It explains why Europeans die where Africans thrive, and why Europeans thrive where Indians die. Recent historical researches have shown that in the Old World malaria has been introduced or generalized in historical times in countries where it was thought to have always existed. Dr. Effertz argues that if in the Old World with its frequent wars and great movements of population malaria could remain comparatively localized for many centuries, it is reasonable to believe that in America, where such movements were very limited, malaria—if we refuse to admit its recent introduction—may have remained localized. The history of the Conquest shows that at least in Mexico, in the isthmuses of Tehuantepec and of Panama, and in Peru there was no malaria when the Conquistadores landed. Dr. Effertz holds that in a country where malaria was endemic the Conquest would have been equally impossible. It must not be forgotten that the Conquistadores had no quinine. In Mexico we read of fevers only in the expedition to Honduras, where Cortes nearly died. Nor can there have been malaria in Panama. No malarial disease is recorded among the conquerors of Peru, and in Peru itself there was no malaria. To discover the cradle of American malaria we must find a place where Indians resist malaria just as well as Africans and where Europeans resist it less than Indians. That place has not yet been looked for. Dr. Effertz further supports his thesis that malaria is of comparatively recent importation in America by the fact that, although quinine is extracted from a tree of American origin, native healers knew nothing of its febrifuge properties. These were discovered by European doctors. The native Indian healers are well acquainted with plants having medicinal properties. They discovered every plant which is of any use in syphilis, their remedies for that disease having repute even among the white. These remedies are generally family secrets; they are certainly some improved decoction of Zittmann. In Indians syphilis is extremely benign, whereas malaria is extremely malignant. It is the extreme benignity of syphilis in Indians which persuades Dr. Effertz that the disease is American in origin, and the skill of Indian healers in treating the disease is an additional argument for this view. On the other hand, the extreme malignity of malaria in Indians is a strong argument in favour of the recent introduction of malaria among them, and this argument is corroborated by the helplessness of Indian healers in dealing with the disease.

Surgeon Fernand L. de Verteuil, R.N., has kindly called our attention to an instance of false concord (*Treponema pallida*), which recently escaped our vigilance; it should, of course, have been pallid*um*. He goes on to say:

> This organism was first called by Schaudinn and Hoffmann, its discoverers, the *Spirochaeta pallida*—the name by which it is still most generally known. They, however, on account of certain morphological and other characteristics, subsequently gave it the name of *Spironema pallidum*, which was finally changed to that of *Treponema pallidum*. As this is Schaudinn's last nomenclature, it should be the term used in referring to the specific germ of syphilis.

We take this opportunity of calling attention to the contempt shown by so many writers on parasitology for the elementary rules of etymology. They insist on writing *agchylostomum* or *agchylostoma*—for they are not consistent even in their heresies—and justify these atrocities by the fact that they are in accordance with the rules adopted by the Nomenclature Committee of the International Congress of Zoology. On this we need only say that the fact only proves that mixed congresses can produce monsters. The word is not only hideous to the eye, but has not a shadow of justification in the Greek language, from which it is presumably derived. The Greek word for something bent or hooked is ἀγκυλος, and there is no such word as ἀγχυλος. In the spelling adopted by the Congress of Zoology, *g* is a very bad transliteration of a γ, which would be nasal before *k* or χ, and the *ch* is wrong, because the Greek is *k*, and not χ. The proper form is *ancilostoma*, or *ankylostoma*. To lessen the risk of mispronunciation, the form adopted by this JOURNAL, after full consideration as to the best English rendering of the Greek original, is *ankylostoma*, and it may not be out of place to state that the word is neuter; therefore *Ankylostoma duodenalis* should find no favour with gods, men, or printers. According to Stiles, *agchylostoma* has been "emended" six or eight different times; we venture to say, in the words of Hamlet, that it should be reformed altogether.

In the sixth volume of the *Life of Richard Wagner* (Kegan Paul, Trench, Trubner and Co., Limited, 1908, pp. 452) Mr. William Ashton Ellis discusses the causes of the ill-health of the composer of *Tannhäuser*. Nordau bluntly writes him down a degenerate; but if we accept Lombroso's teaching, which of us will 'scape that stigma? Mr. Ashton Ellis accepts the theory of eyestrain, and quotes Dr. George M. Gould, who has included Wagner among his crowd of distinguished sufferers from astigmatism. Dr. Gould's view is that the composer's constant headaches, colds, and attacks of erysipelas were part of his disease, but his gloomy and pessimistic outlook on life and frequent longing for death were due to the same cause. His love of walking was but Nature's way of relieving the tired eyes. According to this theory we are all more or less sufferers from eyestrain. But in Wagner's case we have some definite clinical evidence from an ophthalmologist who actually saw the patient. This is Sir Anderson Critchett, whose testimony is as follows:

> The great composer complained to my father that he was suffering from severe frontal headaches, insomnia, and inability to work for more than short periods without distress. At my father's request I tested and examined Herr Wagner's eyes, and found that in each he had a dioptric of myopic astigmatism. He was both astonished and delighted when he saw music through the sphero-cylindrical glasses which corrected his error of refraction, for the notes, lines and spaces were seen with a cleanly cut definition which up to that time he had never known. After his return to Germany he sent us several kind and grateful messages, and the assurance that the unpleasant symptoms had been much relieved. In the ardour of composition the glasses not infrequently came to grief, and I was amused to receive a request that I would order *six* pairs to be sent to Bayreuth.

In another letter Sir Anderson says:

> I feel sure that the degree of astigmatism was the same in each eye, but the vision of the two eyes was not identical, though there was no very marked difference.

Sir Anderson cautiously adds:

> Expert opinion will doubtless vary respecting the extent to which the error of refraction exerted a sinister influence on the life of the great composer, but none can deny that it may have been an important factor in the troubles to which you allude.

Whatever may be thought as to the eyestrain explanation of Wagner's sufferings, Mr. Ashton Ellis's readers must be grateful to him for a very interesting addition to Wagner literature. The book shows abundant signs of careful study and research, and barring certain eccentricities of style, is eminently readable.

PRACTICE OF MEDICINE AND SURGERY BY UNQUALIFIED PERSONS.

The following circular has been addressed to medical officers of health by the Local Government Board in England:

Local Government Board,
Whitehall, S.W.,
23rd *April*, 1909.

Sir,

I am directed by the Local Government Board to state that their attention has been drawn by the Lord President of the Council to the following resolution adopted by the General Medical Council during its recent session:—

> That the General Medical Council being of opinion that the present Medical Acts do not sufficiently enable persons requiring medical aid to distinguish qualified from unqualified practitioners, and that it is contrary to the interest of the public that medical and surgical practice should be carried on with impunity by persons holding no recognized qualifications, requests the Government to take steps for the appointment of a Royal Commission to inquire into the evil effects produced by the unrestricted practice of medicine and surgery by unqualified persons.

Before deciding what steps, if any, should be taken in the matter, the Lord President is desirous of obtaining some definite information on the points referred to in the resolution, and has approached the Board on the subject.

With a view, therefore, to assisting the Lord President, the Board would be glad if you would, as briefly as possible, state—

(*a*) Whether the practice of medicine and surgery by unqualified persons is assuming larger proportions in the district for which you act as Medical Officer of Health; and

(*b*) The effects produced by such practice on the public health of the district.

The Board would be much obliged if they could be furnished with the information asked for at an early date.

I am, Sir,
Your obedient Servant,
S. B. Provis,
Secretary.

To the
Medical Officer of Health.

A correspondent informs us that to this communication he returned the following very pertinent reply:

> In answer to your inquiry as to the practice of medicine and surgery by unqualified persons.
>
> There is no unqualified practice in this district except by chemists who practise both medicine and surgery by prescribing and dispensing their own prescriptions and also by dressing or otherwise advising as to the treatment of various injuries.
>
> Neither practice is for the good of the public health, and I have known cases in which the delay thus caused has been not only serious but even fatal.

Medical News.

Miss Florence Nightingale entered on her ninetieth year on May 12th. She was made a member of the Order of Merit in 1907—the only woman who has received that honour—and received the honorary freedom of the City of London in the following year.

The McGill University of Montreal intends to confer the honorary degree of LL.D. on Dr. George A. Gibson, of Edinburgh, at the Medical Convocations on June 9th. Dr. Gibson gave the inaugural address of the Medical Faculty of the McGill University on September 22nd, 1908, his subject being The Limits of Knowledge.

The course of four lectures on statistical methods in physiology and medicine to be given at the London Hospital Medical College by Mr. Major Greenwood, jun., M.R.C.S., L.R.C.P., will commence on Friday, May 21st, at 4.30 p.m., and will be continued on June 4th, 11th, and 18th. The lectures are open to students of the University of London, and others on presentation of their cards.

Dr. Stuart McDonald, F.R.C.P.E., who has been appointed Professor of Pathology in the College of Medicine, Newcastle-on-Tyne (the Medical School of the University of Durham), and Pathologist to the Royal Victoria Infirmary, Newcastle, has, since 1900, been Lecturer in Pathology in the School of Medicine of the Royal Colleges, and in the School of Medicine for Women, and Pathologist to the Royal Edinburgh Hospital for Sick Children, and to the Chalmers Hospital.

The Harben Lectures of the Royal Institute of Public Health will be delivered this year by Professor R. Pfeiffer, Director of the Hygiene Institute, Breslau, in the Lecture Room, 37, Russell Square, W.C. The first lecture, on the importance of bacteriolysins in immunity, will be given on Monday, June 21st; the second, on endotoxins and anti-endotoxins, on June 23rd; and the third, on the problem of virulence, on June 25th. Each lecture will be given at 6 p.m., and persons interested are invited to attend.

The twelfth meeting of the Departmental Committee appointed by the Lord President of the Council to consider the working of the Midwives Act, 1902, was held at the Privy Council Office on May 12th, Mr. Almeric W. FitzRoy, the Clerk of the Council, in the chair. The following witnesses attended: Mr. Sydney Stephenson, M.B., F.R.C.S.; Dr. Sidney Barwise, County Medical Officer of Health, Derbyshire, on behalf of the Public Health Committee of the Derbyshire County Council, and on behalf of the Midland Medical Union; Mr. Walter Schröder, Deputy Coroner, County of London, Central District.

The number of students who have entered at the London School of Tropical Medicine this session is 50. The rapid increase in the number is straining the accommodation of the school to its utmost limits. The committee is therefore unable to accept any more students for the present course; in special cases, however, application may be made to the director in case a vacancy has occurred. There is still room for students who desire to take out the advanced courses. The next session commences on October 1st. Among those who have entered for the present session are 12 officers of the Colonial Service, 7 of the Indian Medical Service, 1 of the Medical Service of the Royal Navy, 1 in the service of the Rangoon Municipality, and 1 in that of the Australian Government. There are 24 private students, besides 2 from the missions, and 2 medical officers of the United States Army.

Almost ever since its institution the Army Council has shown itself commendably anxious to secure co-operation between the military and civil branches of the medical profession, whenever such is likely to promote the efficiency with which the duties of the Army Medical Service are carried out. The latest instance of this policy is an appointment recently made at the principal military hospital, that at Millbank. This hospital is the head quarters of the Army Nursing Service, and in connexion with members of its staff, and in the case also of soldiers' wives, questions of gynaecology sometimes arise requiring expert advice. In consequence the post of Consulting Gynaecologist has been brought into existence, and has been filled by the appointment of Dr. W. S. A. Griffith, of St. Bartholomew's Hospital.

The physician or surgeon approaches art so far as it affects the human frame from an anatomical standpoint, and in the Academy Exhibition this year the nude is a good deal in evidence. In some pictures it must be supposed the artist intends the figures to be looked at from afar, since the outlines are not definite. Many others display a very high standard of anatomical knowledge. In fact there are only two pictures the figures in which are seriously open to criticism from the anatomical point of view. In "Once Upon a Time" (339) the muscles forming the lower part of the neck are too prominent, while in "The Dragon Fly" (511) the lower limbs are much too long in proportion to the trunk. Mr. Benjamin Clemens's group, "The Expulsion" (1649), is an excellent example of how a correct knowledge of anatomy adds force to sculpture; by anatomy is meant not merely a correct knowledge of the distribution of the muscles of the body. Adam is represented with an expression of mingled apprehension, alertness, and determination. The whole pose of his body intensifies this expression; every limb is in a position of activity, every muscle stands out sharp and distinct under the skin ready to act at any emergency. In the figure of Eve by his side there is apprehension, but mingled in her case with a looking back rather than forward; her body, too, is in a position of activity, and the great skill that the artist has shown lies in his representation of this same position of activity in the two forms, male and female, side by side. In the woman the contraction of the muscles fails to disturb the smoothness of the skin, and it is only at the knees that they can be seen, while the joints are less acutely bent in contrast to the male figure. Many of the portraits of ladies in evening dress represent strained position of the shoulders, which are held somewhat high, the scapulae being pulled back so that their vertebral borders are almost touching one another. It is not a peculiarity of one artist or one sitter, for it occurs many times (24, 26, 148, 322, 404, 408, 720). This habit of position will be handed down to succeeding generations. One other point needs mentioning in a notice of anatomy at the Academy: it is the speaking likeness of Mr. William Pearson (612), the Prosector to the Royal College of Surgeons.

British Medical Journal.

SATURDAY, MAY 15TH, 1909.

THE DOCTOR AS A VICARIOUS PHILANTHROPIST.

THE position in which medical men are placed when called to attend urgent cases of labour or street accidents, with the certainty that in most cases they will receive no remuneration, is fast becoming intolerable. Two cases that have recently occurred in the north have forcibly emphasized this. In the first case, that of Dr. Morgan of West Hartlepool, a medical man has been pilloried in the public press for not attending a street accident when called on, though he was not the police surgeon, and despite the fact that having been refused payment by the police authorities in other cases to which they had called him, he had notified them that he would not in future respond to their summons. No notice was taken of his explanation that he was not informed of the serious nature of the case, nor had he any opportunity of attending the inquest to rebut the statements made about him. The case, as will be seen from a report of a special meeting of the Hartlepools Division published in this week's SUPPLEMENT, has excited a good deal of feeling in the local profession, and it is unanimous in protesting against the unjust criticisms of which Dr. Morgan has been the object. In the second case, Dr. Wright, of Tow Law, near Bishop Auckland, was called on late at night to go to a labour case. The husband of the patient stated that Dr. Wright demanded that his fee should be guaranteed, and sharp words ensued. Dr. Wright denies that he refused to go, and says that the husband deliberately turned away. Another doctor was summoned, and on his arrival found that twins had been born, but that the mother had died from heart failure through exhaustion. The coroner described it as a "lamentable case," but reminded the jury that the impression that a doctor is a public servant and bound to go when called was incorrect, as a doctor was entitled to be paid or to know when he would be paid. The jury returned a verdict that death was due to heart failure arising from exhaustion from want of proper attention at confinement, and a rider was added to the verdict that it was "unwise of doctors to raise the "question of fees."

Two facts stand out prominently in these cases: In the first case it is clear that Dr. Morgan was grossly ill-treated in not being afforded an opportunity of being at the inquest where his conduct was in question; and in the second case, the coroner, though he correctly stated that the common impression was wrong, yet exceeded his duty in accepting the rider to the verdict. The wording of the rider is somewhat curious. It might bear the meaning that doctors would show more wisdom not to mention fees, but to give some other reason for not attending. That might, perhaps, show more worldly wisdom and might prevent some irritation, but it leaves out of account the element of conscience, of which medical men are not quite devoid. What the jury probably meant, however, but hardly liked to say after the coroner's remarks, was that doctors ought to go to such cases whenever summoned without question, and trusting to chance for payment afterwards. That is the popular view, and seems to be the view of most municipal authorities, if not of Parliament itself, if we may judge by the Midwives Act.

Now, it may be conceded that if in a particular case the question were simply that a doctor, knowing that refusal to attend would involve suffering or danger which he might prevent, yet refused to go on the sole ground that his fee was uncertain, he would fairly be deemed guilty of inhumanity. In the words of the Poor Law Commission, "the physical "condition of the patient should be the first con- "sideration," and "neither the promptitude nor the "efficiency of the treatment should depend on whether "the patient can pay for it." That applies to a public medical service, and only perhaps in a second degree to private practice; still every member of the profession, including Dr. Morgan and Dr. Wright, will readily agree to it. So far the popular impression is right; so much common humanity demands; but when all this is granted, we have only faced half the question. For it is obvious that the primary responsibility for making proper provision for medical attendance in confinement cases rests on the patient or her husband; if they fail for any reason to make such provision the duty belongs to the community as a whole and certainly not to any one section of it, and it is neither reasonable nor just for the community to attempt to throw its own duties on the shoulders of any particular class, such as the medical profession. This is freely acknowledged in the case of paupers, who are clothed, housed, fed, and medically treated at the expense of the State, even though their poverty be their own fault. So far is this carried as regards medical treatment that paupers are actually better off in this respect than the working classes who, by dint of hard struggling, manage to keep themselves just above the level of pauperism. The anomaly is accentuated when we find that the State actually accepts a theoretical responsibility for the latter class but in numerous directions fails to make provision for practically discharging its responsibility. The Midwives Act is a forcible case in point. The whole Act is a practical acknowledgement that it is to the present and the future interest of the community that parturient women should be properly cared for. The conditions in which medical aid should be obtained are carefully prescribed, but the means for obtaining such aid are omitted. The State sets out to do a generous thing, but its generosity turns out to be a cheap generosity at the expense of the medical profession. It is not paupers who are in question; they are already fully provided for under the Poor Law. It is that large class just above the level of pauperism, women who can just afford by careful saving to lay by a midwife's fee, but if any emergency occurs, are totally unable to pay the doctor's fee in addition. For some time after the Act came into force it was thought that, though the Act itself made no provision for medical assistance, counties and county boroughs would arrange, with the consent of the Local Government Board, to pay medical fees in midwives' cases under Section 133 of the Public Health Act of 1875. More than six years have elapsed, and of the 62 administrative counties of England and Wales not a single one has availed itself of that section, while of the 74 county boroughs only 3, Cardiff, Liverpool, and

Manchester, pay such fees. Newcastle and St. Helens did actually commence, but they have ceased and left the duty to boards of guardians. The hardship suffered by this large and deserving class of women was fully recognized by the Local Government Board in its circular of July, 1907, in which boards of guardians were advised to pay a fee under the Poor Law Amendment Act of 1848 to any medical man attending a midwife's call under the Midwives Act. Of the 640 Poor Law unions, less than 100 have made any response, and even of these many have either refused to pay for any but paupers, or have attempted to restrict the work to their own district medical officers, or offer a totally inadequate fee of 10s. 6d. for operative interference, or else hedge round the payment with such conditions that it is practically certain that in most cases the doctor will be no better off than before. Thus the advice of the Local Government Board, which was followed up by similar advice from the Privy Council Office in February, 1908, has been simply ignored, and all the beneficent intentions frustrated by most boards of guardians. The Local Government Board seems absolutely helpless to do anything more, however much it might wish.

In this state of things what must medical men do? If they refuse to attend these cases without guarantee of a fee they are called brutal and inhumane. If they do attend, they are voluntarily taking on themselves a burden which the Local Government Board acknowledges ought to be borne by the community; they are doing State work without State pay, and, as experience shows, if they will do it they may go on doing it indefinitely. There can be no wonder, then, that in Essex, Norfolk, parts of the East End of London, Salford, and numerous other places medical men have notified the authorities and the coroners that they will refuse to attend until a fee is guaranteed, as they object to their feelings of humanitarianism being exploited by the local authorities. It is impossible to condemn this attitude in spite of its deplorable results, and even though the Midwives Act is thereby in danger of becoming a failure. The whole cost to the State, if all local authorities were compelled to pay a fee, would be trifling compared with the benefits to the community. In 1907 the cost in fees in Manchester only amounted to £247, but the result has been that parturient women in Manchester may be confident of obtaining medical aid with the least possible delay. It is not suggested for one moment that patients who can pay for themselves should not be compelled to do so, but the authorities must see to that; it has been done in Manchester, where a donation of a few pounds a year to the Charity Organization Society procures the needed information as to the ability of patients to provide for themselves.

The same state of affairs exists with regard to medical attendance in street accidents. In London, Manchester, Salford, and a few other places there are definite arrangements made for payment on fixed scales of fees to medical men called by the police to attend cases of accident or sudden illness occurring on the streets. But in by far the greater number of towns there is no provision at all. The authorities simply evade their responsibility by trusting that the humanitarian feelings of medical men will compel them to do the work for nothing.

It is impossible that this condition of things should continue. Humanity will always claim sacrifice, and will always get it from the medical profession. It is freely admitted that a man's responsibility for helping others increases with his ability to help, but it can never be conducive to the welfare of the citizens that any one section of the community should be systematically exploited for the rest. Sydney Smith said that philanthropy in practice generally meant that Jones thought Smith should do something for the relief of people in distress, and this view is generally held by the public in respect of medical practitioners. It is high time that even coroners and their juries should realize that, however convenient it may be to be charitable at another man's expense, the doctor cannot live if he is to be regarded as a vicarious philanthropist.

THE PROBLEM OF UTERINE CANCER.

IT is exactly a third of a century since Freund, on January 30th, 1878, removed by the abdominal route a uterus which showed "tubular carcinoma of the "portio with isolated carcinoma of the fundus" from a woman whom he was able twenty-six years later to present to a congress at Breslau. In the interval many technical problems have been debated and much experience has been accumulated by surgeons and pathologists, and both technical probiems and experience have contributed to the general recognition of the fact that many cases of uterine cancer have been transferred to the category of curable disease. With cancer of the fundus the curability is even now almost universal, but with cancer of the cervix a large number of recurrences still arise. Of these recurrences, almost all are found to begin in the scar of the old operation, and are to be interpreted as due to the operation having been made through already affected tissue. The surgeon has learned that if women are to reap the full benefit of the wider range which the abdominal operation has given, the cases must go to him earlier.

Of the patients who at present reach the operator three in every four have passed through the hands of their family doctor, and of these a very appreciable proportion have been kept under treatment for some time without any local examination having been made. So long as this is the case the medical profession cannot divest itself of the charge of being responsible for some part of the incurability of cancer. The greater part of the delay in cases seeking our aid is, however, due to the folklore of the menopause, which makes irregular bleeding an ordinary and transitory phenomenon, and leads the woman herself to postpone a call for assistance. The problem of getting our cases of uterine cancer in an early stage is, therefore, substantially that of creating a new folklore among womankind, so that they shall no longer treat irregular bleeding as normal at the change of life, and shall not wait for pain and wasting before they come to seek assistance with the fear of a commencing cancer.

How the education of women is to be accomplished is a question which has for some time engaged the attention of gynaecological societies, and, on the recommendation of the Obstetric Section at the Annual Meetings at Exeter and at Sheffield, the Council of the British Medical Association appointed a special committee to report on the matter. Under the chairmanship of Dr. F. J. McCann, this committee has gone very fully into the matter, and has prepared a report whose recommendations were approved at the last meeting of the Council. In common with the other societies, the committee has recognized that there are two available channels through which women may be approached—the general practitioner and the two now

organized services of midwives and nurses, who, themselves women, have at times an earlier access to the ears of other women than the medical profession itself. To each of these channels the committee has prepared a special entrance in the form of an appeal which in these days can be made available through the professional press. Both appeals appear elsewhere in this issue, and copies were forwarded last week to medical and nursing papers throughout the British Empire.

The appeal to medical practitioners is a somewhat elaborate document, in which a detailed account is given of the symptomatology of uterine cancer and the methods of examination, special emphasis being laid on the uprooting of what is merely an ancient leechlore, that cancer is a condition to be recognized by pain, severe bleeding, and cachexia. One fact of which the full import may not at once be recognized is that in this appeal is laid down very distinctly a doctrine of professional responsibility which would make failure of the practitioner to insist on local examination almost a malpraxis.

The second appeal, to Nurses and Midwives, is much the most simple and direct document of the kind which we have seen prepared for circulation in any country. It would be no serious task to commit the whole of it to memory, and it seems well adapted to the knowledge which both nurse and midwife may be expected to acquire in the course of their training. The committee has ended each appeal with a just recognition of the essential merit of each factor in the course of a woman to the cure of her uterine cancer, the nurse who sends her to a doctor, the doctor who recognizes the condition, and the surgeon who removes it.

The growth of a folklore is slow like its decay, and it will be interesting to see how soon with modern ways we can adapt that of cancer to the new capabilities of its treatment.

THE BUDGET AND MEDICAL AUTOMOBILISTS.

IN the article dealing with the Budget last week the fear was expressed that the statement by the Chancellor of the Exchequer in introducing the Budget could not be held to imply an intention to make any rebate of the new petrol tax in the case of medical automobilists. This fear proves to be correct, for, in reply to a question put to him in the House of Commons by Dr. Cooper, Mr. Lloyd George said that medical men would not be entitled to the rebate. The profession, therefore, is now aware precisely how matters at present stand, and is in a position to take steps accordingly. Arrangements have already been made to ask the Chancellor of the Exchequer to receive a deputation representing the British Medical Association; and there are some indications which augur well for its success. Thus, a more recent question put to him by Mr. Joynson-Hicks (Manchester) Mr. Lloyd George met, not by a definite refusal to reconsider the point, but by a statement to the effect that he was at present disposed to doubt whether a rebate to medical men in respect of petrol as well as car licences would be justified. There have been indications, too, that the House at large would view a rebate with approval. Even from the Government benches, for instance, came a suggestion that in default of a rebate the tax on petrol would seem almost to amount to a special income tax on medical men. Furthermore, the case for a rebate is undoubtedly strong in itself. Since, as has been already recognized by Mr. Lloyd George, there are considerations which make it right to put a lower tax on the cars of medical men, it would be unreasonable to cast those considerations aside when dealing with the article which is essential to the use of those vehicles. A great deal of support for the case for a rebate could doubtless, too, be derived from the individual experience of medical motorists. A good many instances in point are supplied in the letters published this week (p. 1208). The calculations in the notes on the subject last week were purposely based on an estimate of the minimum additional expenditure which the new taxes would throw upon medical motorists. As was there indicated, a distance of 5,000 miles is certainly not an overestimate of the distance annually travelled by a medical man on his professional rounds. There is no doubt, indeed, that far greater distances are often travelled by the very men who can least bear any additional expenditure—men whose net returns from practice are small and whose use of cars confers a great benefit on the scattered communities among whom they work. The distance of 5,000 miles, it may be said, was mainly adopted because in these columns and in motor journals it has frequently been used as a convenient unit on which to found estimates of the annual expenditure of medical men on motor cars. Similarly, as regards petrol consumption, it is undoubtedly true that medical men whose work lies chiefly in towns cannot expect to secure the same mileage per gallon as if they were running from point to point. Furthermore, by no means all medical men use, or should be expected to use, cars so small as those of the 8-h.p. type; nor are all cars of that description as satisfactory in respect of petrol economy as those on which the estimate of 25 miles was founded. Hence, apart from the natural objection of medical motorists to be handicapped by further additions to their inevitably heavy expenditure, it would be easy to show that unless a rebate is granted the tax may create hardships of a kind probably quite unanticipated by Mr. Lloyd George. These considerations will doubtless be borne in mind by the deputation which is to wait on him, but to ensure success it is absolutely essential that each man should also act for himself. There are points which constituents can bring out with much better effect in conversations with individual members of Parliament, or in private letters addressed to them, than by a deputation, and every medical motorist should lose no time in communicating with the member representing his district.

INSURANCE FOR MEDICAL MEN.

As was pointed out a short time ago, the results of the work of the Medical Insurance Committee, established jointly by the BRITISH MEDICAL JOURNAL and the *Lancet*, prove how valuable such an agency is to medical men. The field covered by the agency established by the Committee is steadily widening, and it is clear that medical men are beginning to some extent to realize the advantages offered to them, especially in insuring against personal accidents. The agency is conducted on thoroughly business-like lines under the superintendence of Mr. Guy Elliston, 429, Strand, London, W.C., from whom full particulars can be obtained. With the exception of a small amount, absorbed by clerical expenses, the whole of the profit of the agency has gone to the insurers. The members of the Committee in giving their time to the work are actuated by benevolent motives, as it is intended, when the volume of the business of the agency has increased, as it ought to increase, that the surplus shall be devoted to the assistance of the benevolent agencies of the profession. Possibly

not every person who takes out an insurance policy of any kind is aware that there is a considerable difference between the sum which he pays by way of premium and the amount which enters the coffers of the company which insures him. In other words, there is, in the conduit between the pocket of the insured and the insurer, a leakage in the shape of agency fees. The ordinary insurer cannot avoid this leakage—this payment of moneys over and above the true equivalent of the risk accepted by the insuring company—but it is otherwise with the policy-seeker who deals with the Medical Insurance Committee. In his case the leakage is abolished, for a pipe is provided which conducts back into his pocket the greater part, while any surplus will be used for the benefit of his unfortunate brethren. The *modus operandi* is of the simplest kind: the Committee itself acts as an agent, hands out policies, and retains in its own hands the percentage of all the premiums received by it on behalf of the company for which it acts as agent. This percentage, however, it does not keep itself, but when expenses have been paid hands back a part to the insurer himself. The forms of insurance which the Committee undertakes at present are in respect of personal accidents, of fires, and of burglaries, as well as life insurance and insurance against that liability which was thrown upon the medical profession in common with all other employers of domestic and other labour by the Act of 1906.

UNQUALIFIED PRACTICE.

We reproduce in another column a circular letter which the Local Government Board in England issued recently to medical officers of health. It will be remembered that at the last meeting of the General Medical Council a report from the Unqualified Practice Prevention Committee was presented by Dr. Langley Browne, chairman, and that on his motion, seconded by Dr. Latimer, the Council adopted a resolution pointing out that the present Medical Acts do not sufficiently enable "persons requiring "medical aid" "to distinguish qualified from unqualified practitioners," and that it is contrary to the interest of the public that medical and surgical practice should be carried on with impunity by persons holding no recognized qualifications, and requesting the Government to appoint a Royal Commission to inquire into the evil effects produced by the unrestricted practice of medicine and surgery by unqualified persons. The circular letter quotes this resolution, and states that the Lord President before deciding how to act desires to obtain information as to whether the practice of medicine and surgery by unqualified persons is assuming larger proportions and as to the effects produced by such practice on the public health. It may perhaps be assumed that the Local Government Board is already in possession of information establishing the notorious fact that the Medical Acts are ineffective to attain the expressed purpose of the Legislature, otherwise we would have been disposed to criticize the terms of the first of the two questions which it has addressed to medical officers of health; the point is far wider than the terms of the first question. It is not merely whether unqualified practice is increasing, but whether the Acts are ineffectively drawn to prevent it. The point is perhaps covered by the second question, because the words "such practice" should be taken to refer not to the matter of increase but to the effect of the practice as it exists, whether it be increasing or not, and no doubt medical officers of health will not have overlooked this distinction. As will be seen, one medical officer of health, who has already replied to the inquiry from the Local Government Board, has drawn attention to the evils arising from the great prevalence of counter prescribing—that is to say, unqualified medical practice by chemists and druggists. There is reason to believe that the term "counter prescribing" does not adequately indicate the whole extent of the evil, for there are cases on record in which chemists have not only prescribed over the counter, but have paid medical visits to sufferers in their own homes. As the Local Government Board and the Lord President of the Council are in an inquiring frame of mind, it might perhaps be well that the Divisions of the British Medical Association should take the opportunity of laying before one or other office information in their possession as to the prevalence of unqualified practice and the injury which it inflicts on the public health.

THE DEVELOPMENT OF TRYPANOSOMES IN TSETSE FLIES.

At the meeting of the Royal Society on May 6th, the Secretary announced that Colonel Sir David Bruce, who is in charge of the Sleeping Sickness Commission at present in Uganda, had telegraphed to the Society on April 3rd that the Commission had confirmed Kleine's observations on the period during which the tsetse fly is capable of transmitting a trypanosome infection A letter was received on April 30th from Sir David Bruce, dated Mpumu Chagwe, Uganda, April 3rd, confirming the telegram, and stating that the Commission had "repeated Dr. Kleine's experiments with *Trypano-*" *soma gambiense* and *Glossina palpalis*, also with a "trypanosome of the dimorphon type and the same "tsetse flies, and found the flies infective after sixteen, "nineteen, and twenty-two days." Thus confirmation quickly comes to Dr. Kleine's original work, and the fact that trypanosomes develop in tsetse flies may now be said to be established. This discovery must of necessity, as was pointed out in the Journal of May 1st, have a considerable influence on the prophylaxis of the human disease, because once the cycle in the fly is completed, it may be capable of transmitting infection for long periods afterwards, just as with the *Stegomyia fasciata* and yellow fever. The *Bulletin* of the Sleeping Sickness Bureau, No. 6, to be issued this week, will contain an article discussing the significance of the observations and pointing out that they should lead to experiments to find out what species of tsetse flies can serve as true hosts for the various species of pathogenic trypanosomes, whether the trypanosomes contained in the blood of an infected person are able at all stages of the disease to infect *G. palpalis*, what is the nature of the cycle of development, and in what part of the fly it takes place. It is noted that in Kleine's experiment the trypanosome transmitted came from a country infested by *G. morsitans*, but yet underwent development in *G. palpalis*, a fact which raises the question whether, since more than one specie of the tsetse fly can serve as true host for an animal parasite, why not also for *T. gambiense*, the parasite of man? We have no doubt that experiments of the nature indicated will shortly be undertaken, or have already been commenced. Dr. Kleine, who is director of the German organization against sleeping sickness in German East Africa, is to be heartily congratulated on the brilliancy of his original observations.

ALCOHOL AND PROPRIETARY REMEDIES.

To many students of the minuter records of the doings at the Courts of mediaeval monarchs it may seem that, so far as recorded conversations are concerned, the only wise men were the official jesters. They certainly had the advantage of being able to sail

safely somewhat nearer the truth in their conversation than other people; but in any case it is an old observation that many a wise thing is said in jest. As an instance in point we quote a recent saying of one of the professional jesters of the *Globe* with reference to the new imposts on alcohol.

"The public do not realize," says a doctor, "that in the production of almost all medicinal products alcohol is a *sine qua non*." Can it be that this accounts for the vast popularity of some patent medicines?

The right way to reply to the question would be to borrow an American phrase and say "Got it in once," for the position actually is precisely what is humorously suggested by the querist. Time after time it has been shown that where alcohol prohibition laws are in existence the consumption of certain proprietary remedies rises and falls automatically in precise ratio to the severity with which the prohibition laws are enforced. Nor is this difficult to understand, because though many proprietary remedies are by no means pleasant to take, some of the less unpalatable are little more than disguised alcohol. A proportion of the consumers are perfectly aware of their contents, and buy these concoctions because they provide an easy way of getting the alcohol which they cannot otherwise buy. Nor does this happen only in the prohibition States of America, for in other countries there are persons who would not like to be known as alcohol drinkers, while their constant reliance on a medicine bottle merely excites sympathy. On the other hand, the majority of purchasers of these remedies buy and use them in absolute innocence; they take them because they find themselves stimulated thereby, and are unaware that the stimulation is merely alcoholic. The fact that so many proprietary remedies consist mainly, if not entirely, of coloured, sweetened, or otherwise "doctored" alcohol is not, of course, the only objection to them; but it is one strong objection, and it would be a step in the right direction if vendors of proprietary remedies which contain a considerable proportion of alcohol were obliged to affix to the bottle a full statement of their contents in plain language.

THE ROYAL SOCIETY'S CONVERSAZIONE.

THE first of the two conversaziones given annually by the Royal Society was held at its rooms in Burlington House on Wednesday, and was, as usual, well attended. Several exhibits dealt with radium and the rare gases of the atmosphere. Mr. Francis Fox exhibited samples of pitchblende from Trenwith mine, Cornwall, and specimens of uranium bromide, uranium oxide, and other constituents. Sir William Ramsay showed the properties of liquid radium emanation. Professor J. Norman Collie had an exhibit of perfectly pure neon, which, when enclosed in a tube with mercury and shaken glows with a bright orange-red colour, even at ordinary pressures. If the gas is enclosed with mercury in a silica tube and the mercury boiled, the mercury vapour glows bright green at pressures almost as high as the atmosphere. The most interesting exhibit in this connexion, however, was Mr. T. H. Laby's demonstration of Professor E. Rutherford's method of counting the alpha particles—a marvel of ingenuity and accuracy. By an electrical method a deflexion of an electrometer is obtained as each alpha particle, derived in this instance from uranium, passes into a cylinder. Dr. Bashford showed for the Imperial Cancer Research Fund a series of diagrams illustrating recent advances in knowledge of cancer, and a specimen of the kangri, the portable fire basket worn in Kashmir, the use of which leads to cancer of the skin of the abdomen. Dr. Waller reproduced an experiment first shown by him in 1878 illustrating the electric conditions of the heart, and showing how the different orientation of the heart in man and in quadrupeds may be demonstrated electrically. The eccentric condition in man was illustrated by the fact that the electric phenomena were best shown by dipping the two hands into two beakers of saline, whereas in the dog the best results were shown by immersing a fore and a hind leg respectively. This method of studying the heart's action is not expected to have extensive application in medicine, but it is hoped that it may prove of value in giving additional evidence in certain cases. Mendelism was represented directly only by a case of *Abraxas grossulariata* (currant moth), illustrating sex-inheritance (Mr. L. Doncaster). An account of the results established by the study of the males and females of this variety is given in Professor Bateson's book reviewed in this issue. Incidentally the subject of heredity was touched upon by Professor Karl Pearson, Mr. E. Nettleship, and Mr. C. N. Usher, by some plates illustrating Mendelism and by some pedigrees of man contributed by the Eugenics Laboratory. Other exhibits of interest were some optical instruments, including a new form of optometer for the examination and measurement of defects of vision (Professor W. F. Bassett); the stages in the life-history of the tick, *Ornithodorus moubata*, responsible for the transmission of tick fever (Lieutenant-Colonel W. B. Leishman); and a microscopic section of the aorta of King Menephtah, traditionally regarded as the Pharaoh of the Exodus, showing senile calcification (Mr. S. G. Shattock). Two demonstrations were given in the lecture room, the one by Dr. A. E. H. Tutton, F.R.S., the revelation of crystal structure by polarized light, and the other by Dr. Hans Gadow, F.R.S., of a series of photographs of the scenery, animals, vegetation, and native tribes of Mexico.

THE LOCAL GOVERNMENT BOARD AND PUBLIC VACCINATORS.

EVEN those members of the profession who consider that too much regard is given by medical organizations to questions of remuneration cannot cavil at the action of the Association of Public Vaccinators in seeking an opportunity to be received in deputation by the President of the Local Government Board on the subject of grievances mentioned in the correspondence published in this issue of the JOURNAL (p. 1213), The deputation is refused a hearing because the "points" have been brought before the President's notice, and received his consideration. This is poor comfort for those who have received unjust treatment at the hands of boards of guardians, as the grievances remain unabated, and no assurance is given that any steps will be taken to prevent the recurrence of the harsh treatment narrated in the correspondence. If, as is stated by the Local Government Board, there is no power, under the existing law, to prevent the scandals mentioned, a speedy reformation or amendment of the law is strongly indicated. Public vaccinators are subject to the supervision and stringent inspection of the Local Government Board, and common justice demands that they should be protected from vindictive and spiteful treatment such as these cases demonstrate. The reply from the Local Government Board contains a repetition of a principle which the Board professes to recognize. It is asserted that where the offices of district medical officer and public vaccinator are held together the remuneration for each office should be proportioned to the duties of the office. In practice, however, appointments have been sanctioned by the

Board which violate and disregard this principle. Where the holders of these appointments have fought for the establishment of this principle their efforts have been in vain, and in some cases they have suffered dismissal, receiving no assistance or encouragement from the central authority. Concerning fixity of tenure the Board relieves itself from responsibility by shrinking behind the excuse—no power. It has, however, the power to seek such power. Moreover, the position is somewhat contradictory. By the simple process of an Order, known as the Dewsbury Order, the Board recently conferred fixity of tenure on the public vaccinator at Dewsbury. Right comes to all at last, though often slowly, and the battle with the apathy of the department where the just claims of medical officers are concerned must evidently be waged over and over again.

LONDON'S SMOKE PALL.

THE Public Control Committee of the London County Council has had under consideration the question of smoke abatement and the advisability of the Council's powers being strengthened in the matter. At present, apart from the special cases of locomotives on railways and on roads, the County Council has power to act only in default of a borough council. The borough councils, in their turn, find it difficult to obtain convictions under the Public Health (London) Act, 1891, because the sections which confer powers upon them contain so many qualifying words. The only provision of real value is that dealing with "black" smoke, and this limitation of an effective section is unfortunate, as very frequently smoke which is not black is emitted in such volume as to cause a serious nuisance. The Committee advises that legislation should be promoted next session to provide for the deletion from Section 24 of the word "black," to bring the premises of the Government, local authorities, and statutory companies under the operation of the Act, and to enable the County Council to deal with smoke arising from premises outside the boundary and drifting into London. The Committee points out that the million domestic chimneys in London are responsible in winter for probably one-half of the smoke nuisance. Some of the densest fogs have occurred on days when most of the business premises have been closed, and Dr. W. N. Shaw, of the Meteorological Office, states that London loses half its sunshine in winter and one-sixth in summer owing to the density of the smoke pall. A bank of smoke has been observed to rise to a height of 3,000 or 4,000 ft. and to be carried by the wind in a sunlight-obscuring trail for fifty miles. Abolition of the open fire in favour of the closed stove system while it would undoubtedly result in a purer external atmosphere, would sacrifice much of the fresh air within doors, for which open fires, by providing a good deal of ventilation, are largely responsible. The Committee looks for a reduction of domestic smoke from the adoption of firegrates which secure better conbustion of coal, and to the growing use of gas and electricity for heating and cooking. The report concludes with the suggestion that yet another subject should be added to the day school curriculum—that instruction should be given to the children in the principles of combustion, so as to make them grasp the fact that smoke is not inevitable, but commonly results from the wasteful use of fuel. With the object of educating public opinion the Committee recommends that power be sought to spend not more than £500 a year in the advancement of measures for the abatement of smoke nuisance. The Finance Committee, however, places a check upon the reforming zeal of the Public Control Committee. It "views with apprehension" any proposal for obtaining additional powers which might involve the Council in increased expenditure of an unascertained amount.

TREATMENT OF SCHOOL CHILDREN.

WE noted a short time ago that the London County Council had made arrangements with the Queen Victoria Jubilee Institute for Nurses for the treatment of school children suffering from suppurating ears. The scheme provided that there should be given to children found by the school doctor to be suffering from the affection cards intimating that treatment should be provided, the parents being instructed to obtain medical advice. The cards prescribed the form of treatment to be given, the medical practitioner being required only to sign the prescription. To this a footnote was added, as follows: "It must be distinctly understood that the "London County Council will not be responsible for "the treatment prescribed or given." We learn that the card has now been amended in consequence of a communication sent to the Council by the Metropolitan Counties Branch of the British Medical Association,[1] suggesting that the method of treatment prescribed on the card should be omitted and blank lines substituted, on which the full instructions of the medical practitioner in charge of the case could be inserted. The Branch also took objection to a request to the parent to "consult your own doctor, or take the child "to a hospital for advice," on the ground that the children should not be referred to institutions founded and maintained by charity, but if not under the care of their own medical attendant should receive care under a regular medical service. The card was altered in accordance with both these suggestions, and the Council, taking warning from the case to which attention was recently called in this JOURNAL, has substituted words less calculated to frighten parents. The notice as it now runs reads as follows: "This "child is reported as having discharging ears. As "careful nursing treatment is often efficacious in such "cases, the Council is prepared," etc.

THE PREVENTION OF MALINGERING.

A CIRCULAR has been issued recently by the Scottish Mine Owners' Defence and Mutual Insurance Association, Limited, which at first sight would appear to be quite uncalled-for, and apt to be construed as an interference with medical practitioners in the due performance of their duties. The circular referred to—which, we presume, is issued to mine owners insured with the association mentioned—states that its directors have agreed to appoint inspectors to supervise workmen in receipt of compensation for accidents, with the view of seeing that those who have received slight injuries should not remain idle longer than is necessary, and also to assist the medical officers—we presume of the association—in reporting as to the condition of workmen who have received more serious injuries. Three inspectors have already been appointed, all ex-police constables, and the directors propose to appoint others. The circular further states that the directors contemplate making arrangements for further medical supervision in Fife and Clackmannan. It will be noticed that the inspectors already appointed are to assist the medical officers in reporting on the condition of the workmen. One would like to know what is exactly meant by medical supervision by the inspectors. There is much to be said in favour of a system of inspec-

[1] Metropolitan Counties Branch. Medical Inspection of School Children. SUPPLEMENT, BRITISH MEDICAL JOURNAL, April 3rd, 1909, p. 155.

tion, provided it is judiciously carried out. Those medical practitioners who have had much to do with employees in railway companies and industrial works, and especially referees under the Workmen's Compensation Act, must come across many cases of slight accidents in which workmen go on drawing compensation pay long after they are able to resume work. In such cases we can see no objection to the system of supervision as indicated in the circular referred to. An intelligent and tactful lay inspector would prove of much assistance to the medical officer of companies or the official referee; he would be able to report what the medical man could not do, or even be asked to do—namely, the movements of the injured workman. This may seem a system of private detectives, but the matter must be looked at from the employer's point of view as well as from the men's. Workmen who take the advantage of the Workmen's Compensation Act for trivial injuries, which they are apt to magnify, and who, had this Act not been in force, would never think of absenting themselves from work, are a charge upon the industry of the country, which has to be paid out of the earnings of the industry concerned; that is to say, in the long run, partly out of the wages of honest workmen, and partly out of the profits of the employer. With reference to cases of more serious injury, we do not think the services of a lay inspector meet the case; in such cases nothing but skilled advice should be taken. For this purpose the association should employ medical inspectors.

SPIRITUAL MINISTRATIONS IN THE SICK ROOM.

AT the annual meeting of the subscribers and friends of the Border Counties Home for Incurables, held recently, the Bishop of Carlisle, who presided, is reported to have said that the clergy were often hindered by doctors in their ministrations to the sick. He went on to say that he was one of those who were thoroughly persuaded that God worked by means in every department of life, and to neglect the means which He had provided in the way of surgical skill and medicinal remedies was really to get out of copartnership with God in the matter of the art of healing. He was speaking in the presence of a tried medical friend, with whom he had never spoken upon the subject he was about to mention; but he most firmly believed that during the last thirty years a considerable part of the medical profession had been to blame for the development of what he thought was miscalled Christian Science. No doubt they had acted from the highest motives, but it had been quite a common thing for medical men to place difficulties in the way of the clergy and ministers of religion attending sick beds. He dared say that these medical men had met clergy and ministers of religion who had often seemed to be not wise, not calm, not helpful in the sick room, and had found that their ministrations had been medically injurious; and, therefore, on the ground of the medical injury which had been wrought by imprudent and unwise representatives of religion ministering to the sick, they had put great difficulties in the way of the clergy attending to the sick, especially when the latter were in a state of fever and high excitement. Now he was one of those who believed that there was no influence so wholesome, so quieting, so tranquillizing, so remedial, or so medicinal upon the sufferer as the influence of religion brought wisely and calmly to bear upon the sufferer. He was not talking in the air, but he spoke of what he knew, when he said that it was a very great wrong to put any hindrance in the way of an approach to true, calm, and deep religion at the bedside of the affected and suffering. Dr. Henry Barnes, who spoke after the bishop, said, with regard to Christian Science, that he did not think that all the members of the medical profession were to blame in the respect that had been mentioned. Personally, he had never interfered between a clergyman and a patient, and whenever a patient had expressed a desire for a clergyman to be called in he had always been willing for the latter to come in and give that sympathetic help which the patient required. For our own part, while fully agreeing with the bishop that the influence of religion on those who have faith in its teachings is likely to be beneficial in sickness, we do not think that patients in "a state of fever and high excitement" are in a condition favourable to its operation. But on the general question we believe that the profession at large shares the sentiments expressed by Dr. Barnes. Spiritual ministrations are outside the doctor's sphere of action; his duty is to do the best he can for the bodily welfare of the sufferer under his charge. He has no right to keep the minister of religion out o the sick room unless either from the condition of the patient or from his knowledge of the personality of the clergyman there be reason to fear that his influence is likely to be the reverse of beneficial. There are tactless parsons just as there are inconsiderate doctors. If the patient is in danger of death, the consolations of religion should never be refused him if he or those about him wish for them. With such matters the doctor has as little right to interfere as with the arrangement of the patient's worldly affairs.

THE INDIAN MEDICAL SERVICE.

SOME recent events have produced a feeling of serious apprehension among the officers of the Indian Medical Service. The first of these events is a dispatch, dated December 11th, 1908, from the Secretary of State to the Government of India, stating—according to an abstract published in that country—that he has decided that the time has now arrived when no further increase of the civil side of the service can be allowed, and when a strong effort should be made to reduce it, gradually extending the employment of civil medical practitioners recruited in India. The Government of India is instructed to consider what appointments can best be filled in this way, and in future no appointment is to be made in succession which would involve an addition to the cadre of the Indian Medical Service. We have not had an opportunity of perusing the dispatch, the text of which has not hitherto been published in this country, but there is a fear that it may foreshadow a great reduction in the number of district civil officers. On the other hand, this is not what the abstract of the dispatch—which alone has so far been published—says, and it may not be the intention of the Secretary of State. We understand that his dispatch was a reply to one from the Government of India containing proposals for the building up of an independent medical service in India, to which the well-qualified and best class of native Indian university students should be appointed. It is hoped that this plan may be carried out without affecting the popularity or rights of the Indian Medical Service, but as we have said, we feel that judgement must be reserved until the text of the dispatch has been published. The other matter which has caused anxiety is the appointment of Lieutenant-Colonel C. D. Lukis, I.M.S., Principal of the Medical College in Calcutta, a very excellent officer of twenty-nine years' service, over the heads of all the administrative officers, surgeon-generals and colonels, and over several lieutenant-colonels selected for promotion, to succeed Sir Gerald Bomford as Director-General of the Indian Medical Service. There is a strong feeling that in the interests

of the service no officer should become Director-General who has not had at least a year of military administrative work, and a similar or even longer period of civil administration.

EXOPHTHALMIC GOÎTRE.

In a recent issue of *Ophthalmology*, Dr. Baker has discussed in a very practical manner the future of patients suffering from exophthalmic goître. It had been asserted that as soon as the disease has been diagnosed the thyroid should be removed; and Dr. Park in a paper on the subject read at Cleveland, seemed to think that unless thyroidectomy were done the patient perished miserably. Baker at the same meeting said that the only fatal case he had seen had died under the surgeon's knife. This remark roused so much opposition that he was led to look up and tabulate all the cases at his disposal. Of 50 cases, 44 still lived and none of those dead died from the disease or its complications. Most of these cases had recovered completely. Baker expresses a strong opinion that the natural tendency of the disease is towards recovery. He finds that tinnitus aurium, though not a symptom, is apt to be aggravated in Graves's disease. Marriage and especially childbirth exerts a favourable influence. The exciting cause is a mental shock, the stress of modern life, or worry. Rest is by far the most important factor in the treatment, but hydrotherapy has proved useful. The medicinal treatment is symptomatic. The patients should be encouraged in every way to believe that they will get well.

THE LATE MR. H. L. BARNARD.

The friends of the late Mr. Harold Leslie Barnard, whose untimely death at the age of 41 deprived English surgery of one of its most promising representatives, have resolved to publish as a memorial a volume which shall include all his contributions on abdominal surgery. At the time when Mr. Barnard joined the staff of the London Hospital in 1900, he resolved to publish such a volume, and engaged two of his former pupils, Dr. F. Wood-Jones and Mr. Stanley Beale, to prepare drawings of his specimens for the work. Death stepped in when the task was approaching completion, and his friends now propose to carry out his intention. The volume will be edited by Mr. Sherren, and his friend and pupil Dr. H. H. Bashford will contribute the biography. The drawings made are of great merit, and while they will much enhance the value of the work will materially add to its cost, which is estimated at £200. The committee which has been formed appeals to Mr. Barnard's friends and pupils to assist it liberally and promptly by forwarding subscriptions to the Honorary Secretary and Treasurer, Dr. Cecil Wall, 6, Cavendish Place, Cavendish Square, W. Should the response be sufficient, it is hoped to present a copy of the book to every subscriber, and in any case to give subscribers the benefit of a special subscription price of half a guinea; the published price of the book will be 15s.

"IN THE NAME OF THE PROPHET—SOAP!"

We regret that in a paragraph under this heading in the British Medical Journal of May 8th the "state "ment of sober fact" which a medical practitioner felt "in honour bound" to make as to the virtues of a certain soap—sent to him, it would seem, by the manufacturers as a disinterested mark of kindness—the address from which the "statement" emanated was, by a copyist's error, wrongly given. It should have been *53*, not 63, Harley Street, as printed. We apologize for the mistake, but as the full name and qualifications of the grateful recipient of the soap were given, the error of a figure in the address cannot cause any confusion as to the identity of the writer of the "statement," which is published as an advertisement in *Nash's Magazine*. The complainant in this case says, "Let places, no less than persons, receive "the credit which is their due." We assure our correspondent that we had no intention of robbing the highly respectable mansion from which he writes of whatever credit may be its due.

THE CREMATION SOCIETY OF ENGLAND.

The report of the Council of the Cremation Society of England for 1908, which appears in the *Transactions* recently issued, states that the crematorium at Liverpool, which was built by the efforts of local friends of cremation, under the guidance of Mr. Alfred Holt, has been taken over by the Corporation. That body has appointed a subcommittee to manage it, of which Dr. Caton is chairman, and among its members are Mr. Alfred Holt and Dr. Nicholson, in whose hands the management, while it was a private concern, practically rested. It is further stated that the City Council of Nottingham proposes to apply for a loan to provide a new cemetery, which will include a crematorium. The hope is expressed that the proposal to build crematories which is under the consideration of other city and town councils, particularly those of Bournemouth, Bristol, and Cardiff, will shortly take definite shape. A large increase in the number of applications for membership of the society has resulted from the reduction of the subscription for life membership, and the extension of privileges to any crematorium in Great Britain. Among the persons of note whose remains have been cremated at Golders Green since 1903 may be mentioned W. E. H. Lecky, Herbert Spencer, Sir Leslie Stephen, Sir Henry Thompson (founder of the Society), Sir Henry Irving, Mr. T. H. Wakley, Mr. Thomas Wakley, Sir Richard Strachey, Sir William Randal Cremer, Archdeacon A. S. Aglen, D.D., Mr. H. O. Arnold-Forster, Madame Antoinette Sterling, and Mr. R. H. Boyce, C.B.

Medical Notes in Parliament.

[From our Lobby Correspondent.]

Medical Men and the Duty on Petrol.—On Friday in last week the Chancellor of the Exchequer stated in reply to Dr. Cooper that medical men will not be entitled to a rebate of duty paid on the petrol used in their motor cars. On Monday Mr. Joynson-Hicks asked the Chancellor of the Exchequer whether, having regard to the fact that he was proposing to place only half the additional tax upon motor cars owned by doctors for use in their profession, he would, on the same principle, give them a rebate upon the petrol they consumed. Mr. Lloyd George replied that he had already made a considerable concession to doctors in respect of the licences for their motor cars, and he was inclined to doubt whether there was sufficient reason for also granting them a rebate on petrol. In reply to a further question from Mr. Joynson-Hicks, Mr. Lloyd George said that he never liked to refuse representations from any of the interests affected by bills with which he was concerned, but it was a question of time. He would, if he could, certainly meet any deputation which was representative. Mr. Chiozza Money asked whether Mr. Lloyd George would give consideration to the fact that, as the doctor used his petrol in relation to his profession, the duty amounted to a special income tax; but no answer was returned. In reply to another question, Mr. Lloyd George declined to extend to veterinary surgeons a remission of duty on motor cars.

The Spirit Duty and the Cost of Medicines.—Mr. Lonsdale called the attention of the Chancellor of the Exchequer last week to the fact that one effect of the proposed increase of 3s. 9d. per gallon on the duty on proof spirit would be an advance in the price of many medicines, and asked whether he would consider the advisability of granting a special rebate on spirits used in preparing medicines. Mr. Lloyd George said that he had received a number of letters on this point to which he was giving careful consideration. He could not promise anything at present.

Tuberculous Milk.—Mr. Tyson Wilson asked last week with reference to a report by the Sanitary Committee of the Shropshire County Council on a complaint made by the Liverpool Sanitary Authority that tuberculous milk was being sent to that city from Market Drayton, where the cowhouses and cattle were found to be in dirty condition and one cow was affected with advanced tuberculosis, whether the cow was sold and lost sight of, and what steps would be taken by the Local Government Board. Mr. Burns replied that he had seen the report. According to that report the facts were as stated in the question. He found from the clerk to the Drayton Rural District Council that their sanitary inspector attended the auction at which the cow was sold. He had reason to suppose that it would be sent either to Stoke-upon-Trent or to Newport, and he communicated with the inspectors of both places. He subsequently received information showing that the cow had in fact been sent to Newport and slaughtered there, that it had been found unfit for human food, and had been given to pigs. He understood that the cow had been dry for a month or six weeks prior to its sale, and that as soon as it was found to be diseased it was kept isolated. After the sale the cowshed was thoroughly disinfected. There were, as stated in the question, defects in the cowshed, and the district council caused the attention of the agent of the property to be drawn to them. The defects were being remedied. The case did not seem to call for further action. The local authorities and their officers appeared to have taken all practicable steps to deal with it.

Diseased Meat.—Mr. Ffrench asked whether the inspectors at Hull found during the last quarter numbers of livers infected with parasites, such as immature tapeworms and flukes; whether out of ten plucks from Rotterdam six livers were seized in one ship, and six out of a consignment of twenty in another ship; whether, in addition, seven pig livers, one pig pluck, and calf liver were destroyed as unfit for human food; whether all this came in with the Danish Government label certifying it fit for human food: and, if so, what action it was proposed to take? Mr. Burns replied that the facts as to the articles condemned were substantially as stated in the question, except that the consignments appeared to have been contained in packages bearing labels attesting inspection by the Dutch and not by the Danish Government. He had asked to be informed of all cases in which it was found necessary to condemn certified meat such as was referred to in the question, with a view to communication being made to the foreign authorities concerned.

The Public Abattoir, Belfast.—In answer to a question last week, Mr. Birrell stated that the Belfast Corporation decided last autumn to proceed with the erection of a new abattoir, and the necessary plans had been completed. The Corporation deferred taking further action pending consideration of a report to be made by a deputation appointed to visit abattoirs in other countries. The Local Government Board understood that the report would shortly be laid before the Corporation.

Glanders in London.—In answer to a question put by Mr. Anstruther Gray with reference to the prevalence of glanders in London, Sir Edward Strachey said that the London County Council were and had been for some time past taking all possible steps to eradicate glanders in London, and it was hoped that the strict enforcement of the provisions of the Glanders Order of 1907 would prove of considerable service for the purpose. The disease was not nearly so prevalent in London as it was a few years ago; in 1904, for instance, the number of outbreaks was 1,038, whereas last year the number was 495.

Beri-beri on the Steamship "Cardiganshire."—In answer to a question as to a death from beri-beri on this ship, Mr. Tennant said the man referred to died of beri-beri when ten days out on a voyage from Bangkok to Zaandam. The cause of beri-beri had not yet been definitely ascertained, but it was probable that bad and insufficient food might predispose to the disease. He was, however, informed by the owners that the food supplied in the *Cardiganshire* was better and more abundant than the India Government scale required. The man was medically examined before joining the ship, and had been on board nearly three months; but as he developed dropsy four days after joining it was possible that he took beri-beri on board with him. He was not aware whether he had had previous sea service. No other death from beri-beri had occurred on board this vessel during the last three years.

The Cost of Vaccination in England and Wales.—In answer to Mr. Lupton, who asked for the details of expenditure on vaccination, Mr. Burns said last week that the following table gave the particulars desired, so far as it was possible to supply them. It was not practicable to apportion the salaries of medical advisers, inspectors, and other officers of the Local Government Board, who were only partly engaged in dealing with vaccination cases:

EXPENDITURE ON VACCINATION IN ENGLAND AND WALES.

Financial Year.	Remuneration of Public Vaccinators and Vaccination Officers, Costs of Prosecutions, and other Expenses Defrayed by Boards of Guardians.*	Awards to Public Vaccinators.	Cost of Production and Distribution of Vaccine Lymph by the Local Government Board.		
			Salaries and Wages of Staff.	Hire of Calves.§	Other Expenses.
	£	£	£	£	£
1894-95 ...	82,961	9,823	2,309	266	981
1895-96 ...	78,408	14,986	2,322	265	716
1896-97 ...	84,150	13,669	2,334	265	881
1897-98 ...	76,676	10,689	2,346	280	772
1898-99 ...	72,665	13,181	4,227	424	790
1899-00 ...	237,527	7,369	4,680	1,018	2,077
1900-01 ...	233,512	18,582	5,175	1,161	1,844
1901-02 ...	270,628	10,232	5,709	1,977	2,489
1902-03 ...	457,275	12,940	6,318	2,289	2,546
1903-04 ...	321,443	15,205	6,314	1,393	1,878
1904-05 ...	275,828	14,268	6,100	1,169	1,767
1905-06 ...	260,295	16,580	6,118	1,196	1,509
1906-07 ...	243,483	†	5,057	931	1,380
1907-08 ...	‡	‡	4,743	853	1,303
1908-09 ...	‡	‡	3,997	710	1,055

* The cost of primary vaccination and revaccination, the costs of prosecutions, and the other expenses referred to cannot be stated separately.

‡ Figures not yet available.

† The expenditure during 1906-7 by County Borough Councils cannot yet be given. The amount paid by County Councils was £16,127.

§ No calves are purchased.

Cregagh District Sewage.—Mr. Devlin last week asked a question as to the delay in connexion with sewage purification in the Cregagh district, and Mr. Birrell replied that the Local Government Board had made a provisional order in compliance with the petition of the Castlereagh Rural District Council for powers to acquire land compulsorily for the purpose of providing a system of sewerage for the Cregagh portion of the district, and this order would be submitted to Parliament for confirmation during the current session. The Board would regard favourably an agreement in the matter between the council and the Belfast Corporation, but it was not within the scope of its duties to effect such an agreement.

England and Wales.

[From our Special Correspondents.]

MANCHESTER AND DISTRICT.

Medical Aid in Street Accidents.

Some recent events have shown that it is high time that some uniform arrangements were made throughout the country for the proper recognition of the services of medical men when called to accidents or cases of sudden illness in the streets. A few weeks ago, in answer to a question in the House of Commons, Mr. Asquith stated that in London a fee of 3s. 6d. was paid for cases occurring between 7 a.m. and 7 p.m. and 7s. 6d. between 7 p.m. and 7 a.m., and also that for giving evidence about such cases in the police courts 10s. 6d. was paid if within two miles of the doctor's residence and 2s. 6d. for each additional mile, with a maximum total fee of 21s. But it appears that there is no such arrangement in the great majority of our large towns, and practically nowhere in the country districts. Hitherto authorities have simply trusted to the humanitarian feelings of medical men, and it has very rarely happened that proper medical assistance has not been readily available, even though in most places every medical man knows quite well that in three cases out of four he will never be paid for his trouble. When an accident occurs everybody is ready to run for a doctor, but it often happens afterwards that everbody, even including the patient, denies any liability. It is a fact that the police in some towns have had instructions not themselves to send for a doctor; irresponsible bystanders may do so, and the police are then not liable. It is by no means uncommon for every doctor in the neighbourhood to be called, and in a short time three or four arrive on the scene only to find that the case was a trifling one or that some other doctor has already attended to it, and none of them receive anything for their trouble, though they may have been called away from a surgery full of private patients. The public has been educated to regard services thus voluntarily given without remuneration as a right which it can claim at any time. And though a doctor may have gone to half a dozen cases which have turned out to be trifling, and for which he has never been paid, if by any chance he fails to go to a case which proves serious, he is at once branded as inhumane, even by people who would pass by an accident on the other side of the street. That this is no imaginary picture is seen from a case which has recently occurred at West Hartlepool, where Dr. Morgan, a well-known practitioner, and the last man in the town who should be charged with inhumanity, has been pilloried in the public press for failing to attend an accident in the streets. It appears that he had no intimation that the case was of a serious nature, nor has it even been proved that it was possible for him to attend, and, what is far worse, he had no opportunity of attending at the inquest afterwards to rebut charges made against him. Several cases similar to the above have occurred in Manchester and Salford, and representations have from time to time been made to the authorities. It is satisfactory to state the joint committee of the Manchester and Salford Divisions has now been officially informed by the solicitor to the town clerk of Manchester that the scale of fees paid to the police surgeons "applies also to ordinary medical men when called in by the police to cases of accident or sudden illness in the streets." This scale is 3s. 6d. for attending by day and 7s. 6d. by night, with a fee of 21s. for attendance in the police court to give evidence. The official intimation however continues:

> I may add that it very rarely happens that it is necessary for the police to call in ordinary medical men, as by an arrangement with the Telephone Company the police officers can use *any* telephone, and by this means obtain the services of the police surgeons and horse ambulances in which to convey patients to the infirmary quicker than they could obtain the services of other medical men.

For Salford, the Chief Constable writes: "The fees payable to medical men for attending street accidents in the borough or attending court are upon the same basis as those quoted by Mr. Asquith," that is, the same as given above for London. Tramway accidents are in a different category, the arrangement being that the Salford Tramways Claims Department will pay 5s. for first aid in any tram accident, but the claim for the fee must be accompanied by a short report of the injuries and any statement the patient may have made with respect to the accident. For first aid alone 3s. 6d. has generally been paid.

It is evident that until some similar arrangement has been made universal throughout the country, there will be constant dissatisfaction; and nothing but an organized demand for the matter to be put on a business-like footing will prevent a repetition of the unfortunate event at West Hartlepool.

WALES.

The Ebbw Vale Dispute.

The Ebbw Vale dispute seems to grow more and more confused. The following paragraph, which we quote from the *South Wales Daily News* of May 4th, describes what, as far as we know, is its latest phase:

> The Ebbw Vale Workmen's Doctor's Fund dispute, having existed over three years, is now as far off settlement as ever. A meeting of the Cwm and Wainlwyd section was held at the Public Hall, Cwm, on Monday evening, May 3rd, when Mr. F. Griffiths presided over a large attendance. The chairman, in his opening remarks, gave a summary of the proceedings that had taken place since the signing of the original agreement, and said that the manner in which the second ballot was taken was unfair, and was an insult to the intelligence of the voters. The ballot boxes had been carried about by persons deeply interested in the result; and while he did not attribute any unjust motive, it was nevertheless not above suspicion. It was decided to instruct the solicitor to proceed for the recovery from the fund of the money awarded by Judge Owen in the county court to the Cwm section, and that, as far as the future was concerned, that matters be left in the hands of the committee to proceed in the best and most speedy way to recover what have been incurred since, and that an injunction be applied for.

Scotland.

[From our Special Correspondents.]

Dundee and Its Sanatorium.

Dundee has missed an opportunity of honour. For some years it has, in dealing with phthisis, pursued a policy which has developed gradually through the stages of sputum examination, voluntary notification, and the establishment of a municipal dispensary. Last autumn the medical officer of health, in his report as a delegate to the International Congress on Tuberculosis, developed a scheme for the complete management of the phthisis problem. The main provisions of this were compulsory notification, municipalization and development of the Sidlaw Sanatorium, and segregation of incurable cases. The sanatorium with its forty beds was to be handed over as a free gift, but without endowment, and the financial burdens involved were estimated to require a rate of 2d. The Convener of the Health Committee met this scheme with enthusiasm and almost too great energy, and succeeded in carrying it through unmodified up to a point at which the transfer agreement had been signed, and the transaction could be closed by securing the sanction of the Local Government Board, which had been promised in advance, and the assent of the Scottish Secretary. Unfortunately, the matter had become complicated by personal questions, and by a proposal to redress an old grievance, due to the astuteness of an ancient official, which confers on Dundee the distinction of being the only place where the health-rate falls entirely on the occupier. The new rate was to be called the sanatorium rate, and was to fall equally on owner and occupier. This evoked the hostility of certain interests which were eventually successful in expressing so much public opposition that the town council which at first passed the scheme with only three dissentients, eventually at a special meeting asked the directors to cancel the agreement. That Dundee has thrown away the honour of being the first city in the kingdom to own a sanatorium for phthisis is a matter of less serious import than the unawakened public conscience it has revealed in the process. This seems to foreshadow neglect, as, of the two other ways in which the phthisis problem may be met, being more probable than a root

and branch method of improving the conditions of housing and employment which would afford appreciable results a generation hence. Any such method is even less likely to harmonize with the visible interests of the Chamber of Commerce and the House Factors Association who have been so successful in their present agitation. One unfortunate result of the present fiasco is that it has impaired the charitable support which was hitherto given to the Sidlaw Sanatorium. The results of treatment in early cases have been excellent, and it will be a catastrophe for Dundee if such relief as the Sanatorium at present affords to the phthisical of that community is withdrawn.

A WEST AFRICAN ARROW POISON.

At a meeting of the Royal Society of Edinburgh a communication was submitted by Sir Thomas Fraser and Dr. Mackenzie, Carnegie Research Scholar, on *Strophanthus sarmentosus*. It was one of the many species of the genus *strophanthus* found in Africa. A considerable number of years ago the seeds of another species came into Sir Thomas Fraser's possession, and were fully examined in regard to chemistry and action, but as the species from which the seeds were obtained was unknown the results were not published. Many efforts had been made to obtain the flower and other parts of that plant, but for a long time were unsuccessful. Specimens of several unexamined species, however, were collected, and among them was a complete and large collection of the fruit and flower of *Strophanthus sarmentosus*, and with the materials thus obtained investigations had been made. Strophanthus was found over a large part of West Africa—Gambia, Senegambia, Senegal, and especially in Nigeria. Most of the material had been collected by officers of the Colonial Medical Service. These gentlemen brought under the notice of the authors of the communication the prevalence in Nigeria of the use of poisoned arrows, the main ingredient of whose poison was derived from the seed of the *strophanthus*. A large number of these poisoned arrows had been obtained by the kindness of Sir Frederick Lugard. *Strophanthus sarmentosus* is a creeper or vine. The seeds are small. Sir Thomas Fraser said that the pharmacological investigation was made with an alcoholic extract from which had been removed a large quantity of fat and other inert substances. Because of the therapeutic interest which was attached to the seed of the *Strophanthus hispidus* in the treatment of cardiac disease, the action of the product was fully examined, and the result showed that the contractions of the heart were modified by it much in the same way as by the official drug. It might be expected, therefore, that *Strophanthus sarmentosus* would also become a remedy of much importance and value.

Ireland.

[FROM OUR SPECIAL CORRESPONDENTS.]

THE PERMISSIVE PROVISIONS OF THE TUBERCULOSIS BILL.

A STRONG deputation from the local branch of the National Women's Health Association of Ireland appeared before the monthly meeting of the Coleraine Urban Council, and with statistics and arguments urged the adoption of compulsory notification and other clauses of the Tuberculosis Prevention (Ireland) Act of 1908, which is to come into force on July 1st. Several ladies spoke, and the Chairman said that the urban council had already anticipated much of the work, and was willing to bear its share of the expense of a county sanatorium; the work of the association had its strongest sympathy, and he advised the ladies to bring pressure on the county council.

When it is remembered that on both sides the discussion was carried on by the laity, and that one side was exclusively composed of ladies, the circumstance marks an enormous advance in the education of public opinion and in public health administration.

THE Japanese Government has decided to establish five leper colonies, in which at first about 1,000 patients affected with the disease in a severe form will be compulsorily isolated. The foundation of a leper hospital at Osaka and of a home in the island Kin-Sin is also under consideration.

Special Correspondence.

BERLIN.

Boy Suicides.—Sanitation of German Health Resorts.

GERMAN psychologists and German statisticians are giving much thought just now to the subject of boy suicides, and, indeed, it is time they should do so, for, in spite of the wide publicity given to these deplorable events by the newspapers—even, perhaps, by very reason of that publicity—the wildest notions on the subject seem to prevail. Not only are fantastically high figures circulated and accepted in other countries, but in Germany itself the general belief is that the evil is increasing at an alarming rate, and that overwork and brutal treatment at school are chiefly, if not exclusively, responsible for it. The Prussian Cultus-Ministry placed at the disposal of Professor Gerhardt, a theologian of mark, and himself a school teacher, its large and carefully sifted collection of material on the subject, embracing all the higher-grade boys' schools in Prussia, and covering the twenty-nine years 1880–1908. He has now published a pamphlet with well-arranged tabular information in which the correct figures can be read at a glance. If, in spite of endeavours evidently conscientious, he has not, in some of the inferences he draws from them, been entirely able to overcome certain prejudices inherent in his profession and position, still the figures stand there, and likewise the medical reports on a large number of cases; these speak a language impossible to misunderstand. The tables demonstrate that the average boy suicides, that is, the number compared with the actual number of pupils, though it has varied from year to year, has not increased during the last twenty-nine years. That in fact, except for the year 1908, the average of the last five years has been comparatively low. For instance, in 1883 the proportion was 0.013 per cent. (17 suicides out of 129,971 schoolboys), whereas in 1906 it was only 0.0077 per cent. (16 out of 205,883), these examples being taken at random. The highest proportion, 0.0146 per cent. (20 out of 136,908) was reached in 1889; the lowest proportion, 0.0037 per cent. (5 out of 131,836) in 1882. The figures for last year (1908) were again deplorably high, 0.0124 per cent. (28 out of 224,823). Unfortunately some families resolutely refused to furnish any data or information that could have thrown a light on the suicide, and in a few cases neither family nor friends nor doctor nor teachers were able to give any clue whatever. Undeterred by these blanks in his list, Gerhardt set valiantly to work to classify the information afforded by the cases of the last ten years, a total of 170, and found mental disease, oftenest a hereditary suicidal mania, fully proved in 31 cases. The surmise may be hazarded that the families who withheld all information may probably have done so for fear of disclosing to the world similar hereditary tendencies. In 47 cases no connexion whatever was traceable between school life and the catastrophe. These were none of them backward or (apparently) in any way abnormal, nor had they undergone punishment, or been worried by ironical remarks, or insulted in any way, nor did they go in dread of examinations. They were, without exception, satisfactory, steady pupils of average powers, a few of them distinctly above the average. In one group of cases miserable family dissensions (impending divorce of the parents, illegitimacy, etc.), in another early profligacy and venereal disease with fear of its detection drove the lads to their early death. Unrequited love, *à la* Werther, and the sudden death of parents gave the clue for the *taedium vitae* of a few others. A few killed themselves out of pure fanfaronade ("what a stir it would make," said one of these misguided boys to a friend), and three were the result of the mysterious contagion that sometimes goes out from dark deeds such as suicide. In conclusion, Gerhardt lays the blame more on the home than on the school, on the want of psychological watchfulness at home, whether it arise from ignorance or indifference. It is, at any rate, certain that his pamphlet will remove a great part of the odium that has rested on German schools so long. Still, the fact remains that the German matriculation, being a very difficult examination—far more difficult, as is believed in Germany, than the

matriculation of other countries—the less diligent or less gifted among the boys, who feel themselves bound to go through with it, or who are kept to it by their parents, are obliged to remain in school bondage at an age when they naturally long for a freer life—that they grow stale at school, in fact. No psychologist will deny the corollary that at so critical an age, and under such anomalous circumstances, terror of not being able to pass the examination after all may largely contribute towards bringing out inherited instincts which, but for such terror, might have continued dormant.

Two days' deliberations were given to the question of obligatory sanitary arrangements in German spas and health resorts by a special committee of medical and hygienic experts. The meetings were held in the hall of the Imperial Board of Health, and members of the Board, besides delegates from the Prussian ministries of trade, and of agriculture, and from the ministries of the various Federal States, were present and joined in the proceedings. The milk supply—especially at seaside places—was one of the chief subjects under discussion, and a schedule of requirements was drawn up. Further, a motion for the obligatory formation of a sanitary committee in every German health resort was carried. The establishment of a Central Balneological Bureau in Frankfurt-am-Main was suggested, and was warmly approved by the meeting. Proper steps towards realizing the project will, therefore, be taken.

Correspondence.

THE BUDGET.

SIR,—I hope you will permit me to criticize the article on p. 1133 of last week's JOURNAL, in as far as it refers to the new tax upon petrol.

Our motor cars are an expensive necessity, not a luxury. I need not advance arguments why we should be classed in common justice with other commercial consumers of petrol.

In my opinion the amount of petrol consumed per mile run, and consequently the gravity of the new tax, has been underestimated in the article. I am prepared to grant that the average mileage may be about 5,000 per annum; it is impossible to dogmatise, but I cannot admit that 200 gallons of petrol would be the average consumption for the above mileage of an 8-h.p. car.

It is conceivable that in a sparsely-populated country district, with good roads, few gradients, and comparatively few stoppages, an 8-h.p. car might average 25 miles to the gallon, but in the case of the ordinary city or suburban doctor every one will admit that the ratio of consumption will be increased by fully 40 per cent.

Take my own case, I have an 8-h.p. car. I practise in and around a large city. I use from 350 to 400 gallons per annum; I cannot give my exact mileage, but I fancy it is not more than the average. The large consumption is due to the frequent stoppages, startings, and turnings incidental to one's routine work, and further to the fact that the car is of low power, and therefore a considerable amount of the work has to be done on second speed in traffic and side streets. When I have had to make a long run I have averaged nearly thirty miles to the gallon.

The amount I am mulcted in at present for my small car as far as taxes are concerned is:

	Per annum. £ s. d.
Self and chauffeur's driving licences ...	0 10 0
Chauffeur's Inland Revenue tax	0 15 0
Car under 1 ton, Inland Revenue tax ...	2 2 0
	£3 7 0

In future it appears:

Self and chauffeur's driving licences ...	0 10 0
Chauffeur's Inland Revenue tax	0 15 0
Car over 6½-h.p., half tax	1 11 6
8 gallons of petrol per week at an increased cost of 4d. per gallon (3d. tax)	6 18 8
	£9 15 2

From the information I have been able to obtain from several professional friends, such an estimate is well within the mark. One friend who runs a 10–12-h.p. car, and whose "round" is similar to my own, uses 2 gallons a day.

I hope, Sir, that the JOURNAL will stand by the members in this new imposition by offering a most strenuous opposition to the new tax. As you point out on page 1133, it would be highly anomalous if the petrol were regarded as used for other than "commercial purposes."

In the widespread agitation from all sources against the incidence of the multitudinous proposals contained in the Budget, lies the danger that we doctors may be overlooked.

Further, I hope all medical men—for practically all are motorists or potential motorists—will without delay write to their respective members of Parliament.

The Chancellor's remission of half the licence duty was greeted with a chorus of approval from both sides of the House, and I am convinced that the "petrol tax" is due to an oversight.—I am, etc.,

Higher Broughton, May 8th. W. BRUCE BELL, F.R.C.S.E.

SIR,—It is the ascertained opinion of the medical men residing in this district who use a motor car for the purposes of their profession, that the proposed tax of 3d. per gallon on petrol will be an unfair impost upon them.

That it will be a heavier tax upon them than upon the owner whose car is a luxury is indicated by the following considerations:

1. The doctor's mileage is largest in the winter, the other's in the summer.
2. The petrol consumption of the winter months is considerably greater (owing to heavy roads, etc.), than that of the summer.
3. The continual stops and restarts considerably increase the amount of petrol used.
4. It is admitted by those road surveyors whom I have consulted that the average doctor's car, unlike the heavy, high-powered, and rapidly travelling vehicle, is not responsible for appreciable damage to road surfaces.

These contentions, which can be supported by figures, seem to show that, even if the commercial rebate were allowed, the doctor would still be paying as heavy a tax as his neighbours.—I am, etc.,

J. C. NEWMAN, F.R.C.S., M.B., B.C.

Bishop's Stortford, May 10th.

SIR,—It is probable that the tax on petrol will press more hardly on medical motorists than would be indicated in your editorial on the subject. You assume that 5,000 miles is a fair average yearly run for a medical car and the expenditure at a gallon per twenty-five miles.

With regard to petrol consumption, it must be remembered that in our work, involving as it does such frequent stops, far more petrol is used than in making a non-stop run of the same distance. Thus I have an 8–10 car which on good roads and running straight will do more than twenty miles to the gallon, but which on ordinary roads in winter, and with about twenty stops a day will average only about fifteen miles to the gallon. Again, though your estimate of sixteen miles a day may be right for men in towns with some country practice, it is too low for the country doctor, who will average more nearly thirty miles, or between 9,000 and 10,000 miles per annum. This being so, the petrol tax will tell heavily on us. I know that for myself; I consume 60 gallons of petrol a month. At an increase of 4d. per gallon brought about by the tax that means £1 a month, or £12 a year, rather a big tax on a country doctor. When we learn that there is to be a rebate for "commercial" users of petrol, but that this is not to apply to medical men, I think we should make every effort to have this injustice removed in committee.

For an injustice it is. The "commercial" user, the trader who carries goods or passengers, will, it is quite certain, in the vast majority of cases get his money back at a profit. If not he has his remedy and applies it. With us how very different is the case! Many a time when we start out to see a distant patient we know that the fee, if ever paid, will barely recoup us for expenses, and that as frequently as not we shall never see a penny. It is not equity to give the trader a rebate and to withhold from those who may have to work at a loss from quite other than a commercial motive. I suggest that each medical man interested should write or see his member of Parliament and endeavour to get this injustice remedied.—I am, etc.,

Cupar Fife, May 9th. C. E. DOUGLAS.

SIR,—Is it not proper for the British Medical Association to take action with reference to the proposed tax on the breathing spaces of towns—those, at least, that are in private hands? The proposal reminds one of the old window tax, in that it inflicts a penalty on the supply of fresh air.—I am, etc.,

Tunbridge Wells, May 10th. P. C. SMITH.

SIR,—May I ask, Is it fair that doctors owning motor cars should pay only half the tax on their cars, while doctors using horse carriages should continue to pay the whole tax, as if they were used for pleasure and not as a means of earning a "mere living"?—I am, etc.,

May 10th. AN M.D. WHO DRIVES A CARRIAGE.

SIR,—In regard to Dr. O'Connor's suggestion of making the increased Budget duties a ground for agitating for increased capitation rates for sick clubs, there are, I think, grave objections. That the average rates are too low is undeniable, but surely we have surer and firmer grounds for a higher remuneration than the occurrence of a temporary increase in the drug bill. The prices of drugs vary from time to time and Budgets are soon altered, and if we adopt Dr. O'Connor's suggestion we are forging a two-edged sword that may be used against us later on when the spirit duties are taken off or reduced and the price of drugs fall. To be logical we should then accept proportionately smaller club rates. Does Dr. O'Connor urge this? Such an arrangement can be of no benefit to the doctor, but only lead to friction and confusion.

Were we mere retailers of drugs there might be some justification of this course. But I think there is no occasion for the profession to emulate the practice of the "trade," who appear to be making increased charges on spirits absurdly out of proportion to the proposed increased duty, and who (at present at any rate) are doing rather a profitable trade on the Budget.—I am, etc.,

May 9th. CLUB DOCTOR.

PROFESSIONAL UNION AND THE BRITISH MEDICAL ASSOCIATION.

SIR,—I was interested to see Dr. Horseman's letter publicly acknowledging his debt of gratitude to the Association for what it had done in raising contract fees in his district.

As an incentive and encouragement for other Divisions to co-operate for their own internal and possibly eternal welfare, I should also like to mention what has been accomplished in my Division in that direction.

Some five years ago I was asked to organize, under the auspices of the Division, the union of practitioners in my district by calling upon and securing the signature of every medical man to a bond not to accept any *new* club without first consulting a committee that was appointed. In this way every man became a candidate on equal terms. The excellent results of this personal canvass are shown in the medical rates of three clubs being raised to 6s., in one case the former scale being just doubled. We have had one failure, a newcomer and non-member of the Association, who first agreed to act in concord with the other applicants for the higher rate, and then accepted the lower.

Last year a meeting was held in conjunction with a neighbouring Division, notice of which was sent to sixty-five general practitioners, and succeeded in obtaining their agreement to a minimum 6s. new club rate, and at our own last annual meeting a resolution was unanimously adopted, making it compulsory for no *new* club appointment to be accepted at a less rate.

I hope that other Divisions throughout the country will see their way to adopt such a scheme when clubs fall into the market, either by the decease or retiral of their medical officers. Six shillings may not perhaps be termed an ideal minimum at which to rest content, but it is in the right direction, and is certainly preferable to remaining for ever at the 3s. or 4s. rate which spells either slavery or quackery.—I am, etc.,

G. H. GRANT DAVIE,

May 10th. Hon. Secretary, Manchester (South) Division.

HOME CONDITIONS AND EYESIGHT.

SIR,—With reference to Dr. L. F. Richardson's remarks upon the conclusions of Miss Barrington and Professor Pearson that "there is no evidence whatever that overcrowded, poverty-stricken homes are markedly detrimental to the children's eyesight," it may be pointed out that generally when the homes are overcrowded the districts in which those homes are situated are also overcrowded, and that these conditions are distinctly detrimental to the children's vision—that is to say, to the acuity of vision.

Some time ago I examined the vision of 1,000 country-town children for the Board of Education and of 50,000 children for the London School Board, the London children being taken from every variety of district. These children for purposes of comparison have been divided into six classes or divisions, in whom the following variations in the quality of eyesight have been noted. (The figures denote percentages of defects):

I. Jewish children residing in the East End and mostly of Russian nationality, 37.16.
II. Children of poor working-class parents living in crowded neighbourhoods where there are no wide thoroughfares, 29.04.
III. Same class as II, but not so much walled in and wide thoroughfares available, 27.0.
IV. Country-town children, but mostly of poorer class than V or VI, 21.0.
V. Children living in more or less semi-suburban localities, 19.01.
VI. Children residing in more outlying suburbs and those attending higher-grade schools, 18.0.

With regard to the East End Jewish children, the organic defects are not greater than in the other children, but they are incapable of being corrected to the same extent as other children. Various theories have been put forward to account for this, but so far none has been found to explain the fact.

It may be mentioned that when children of Classes II and III are sent into the country at holiday times, many of them at a distance of 500 yards cannot distinguish a cow from a cottage, but their vision improves daily.—I am, etc.,

London, W., May 10th. H. CRITCHLEY, M.D.

SIR,—Mr. Richardson quotes and seeks to explain Miss Barrington's and Professor Pearson's paradoxical statement that there is "no evidence whatever that overcrowded, poverty-stricken homes, or physically ill-conditioned or immoral parentages are *markedly* detrimental to the children's eyesight." The statement is not only paradoxical, but directly contrary to the experience of any one who has had much to do with an ophthalmic out-patient clinic. Apart from errors of refraction, by far the most common cause of defective vision is the presence of corneal nebulae, resulting from phlyctenular keratitis, and this disease is undoubtedly associated with bad food, bad air, and parental neglect. How, then, does it happen that the total number of those with defective vision is not (if it is not) greater among these neglected children than among those who are better cared for? The explanation that I would suggest is that among the latter class the proportion of studious children is so much greater than among the former that they are more subject to school myopia, and that this factor, as far as the acuity of distant vision goes, is sufficient to balance the greater prevalence of corneal disease among the less cared for children.—I am, etc.,

London, W. A. HUGH THOMPSON.

TETANUS OCCURRING AFTER SURGICAL OPERATIONS.

SIR,—I read with interest Mr. Richardson's communication[1] on post-operative tetanus, and enclose a brief note of two cases occurring in my own practice.

H. M., male, aged 10, was admitted to the General Hospital, Birmingham, April 20th, 1898, for tuberculous glands along the carotid sheath on the left side. These were excised on April 22nd, and a satisfactory convalescence followed until May 4th, on which day the boy was to be discharged from hospital. The sister of the ward then mentioned that the patient complained of a stiff neck, and on examination I found the head in a position due to spasm of the left sterno-mastoid. The patient swallowed with difficulty, but there was no stiffness of the jaw or pain on opening it, no definite twitchings of the muscles; the wound was healed except for a tiny place at the point of insertion of the drainage tube. The subsequent daily history showed a constant increase in the gravity of the symptoms, which became typically those of ordinary tetanus, and on May 7th breathing was very difficult, owing apparently to spasm of the

[1] BRITISH MEDICAL JOURNAL, April 17th, 1909, p. 948.

diaphragm. On May 8th the spasms were very bad, and the patient was given chloroform for a short time, and artificial respiration was performed. He died on the morning of May 10th.

Tetanus antitoxin was given six-hourly, beginning on May 5th and continued till the time of death.

The second case was in a private hospital. A lady aged 35, the subject of early carcinoma of the breast, was operated upon on Halsted's lines on October 31st, 1905. The wound healed *per primam*, and the patient was getting up, but on November 13th it was noticed that she was perspiring rather freely, and again on November 14th; on November 15th pain was complained of in the neck and jaw, and it was found that the muscles of those parts were definitely rigid. From this time onwards the symptoms of tetanus were well marked, and continued to increase until November 25th, when they began to abate slightly, but rigidity of the muscles of the back and to some extent of the abdomen continued until December 8th, when it finally disappeared. Tetanus antitoxin was administered every six hours from November 15th until November 26th, subsequently at less frequent intervals till December 1st, then once a day for three days, then every other day until December 11th, when the antitoxin was discontinued. An occasional dose of potassium bromide was also given, and from time to time morphine when severe pain was complained of and sleep seemed to be badly needed.

An interesting point in connexion with this case is that when I saw the patient's husband and told him of the grave condition which threatened his wife, he said that he had at once recognized the nature of her complication because some months previously he had lost one of his horses from lockjaw, and his wife's symptoms reminded him of those from which the animal had suffered.

Whilst all the elements entering into an operation which is followed by tetanus will naturally be closely scrutinized by the operator, I am bound to say that I had not particularly attributed blame to the catgut employed. My methods of preparing catgut have varied during the period covered by these two operations, but I have always periodically tested the gut by cultivation, and have had no reason to suspect that it was infected by any pathogenic germ at any time.—I am, etc.,

Birmingham, May 5th. GILBERT BARLING.

SCHAUDINN'S OBSERVATIONS ON HALTERIDIUM.

SIR,—The importance of Schaudinn's work to scientific medicine is so pre-eminent that it would be extremely unfortunate were an impression to become current that on a material question of fact the accuracy of his observations had been successfully impugned. Two separate passages in the last issue of the BRITISH MEDICAL JOURNAL (May 8th, 1909) seem, however, to convey the idea that on a zoological point closely connected with the parasitic haematology of man the investigator was mistaken.

Most of Schaudinn's researches were so complex and technical that confirmation has necessarily been tardy; and, for the same reason, in none of them has it been so long delayed as in the case of his work on halteridium. In view of recent observations, however, these criticisms can scarcely be justified; and it now appears to be probable that Schaudinn's conclusions on the developmental changes of halteridium, as on questions of more immediate medical interest, will be fully accepted by zoologists. This agreement is clearly indicated in an article on nuclear dimorphism in halteridium by Dr. H. M. Woodcock,[1] in which, after referring to the work of Lühe and Miyajima on piroplasma, he says:

> This feature (nuclear dimorphism) in halteridium, even regarded by itself, is, to my mind, most suggestive; and it is with very great pleasure that I bring forward what is, I believe, the first definite piece of evidence tending to confirm one, at all events, of Schaudinn's celebrated conclusions.

—I am, etc.,

London, W., May 10th. W. CARNEGIE BROWN.

THE CAUSE OF DYSMENORRHOEA.

SIR,—In the JOURNAL of April 17th Dr. G. E. Herman returns to the consideration of dysmenorrhoea, and the expression of an opinion as to its causation by so eminent a gynaecologist must perforce command widespread attention.

Dr. Herman remarks that in about one-third of all cases the pain suddenly begins after years of painless menstruation. Thereupon he enunciates a theory of causation which assumes the presence of a centre in the spinal cord or sympathetic system, having control over the movements of the genital canal. To the imperfect development of this hypothetical centre is ascribed the characteristic pain of spasmodic dysmenorrhoea.

What, then, may I ask, is the degree of development of this centre in the class of patients to which reference has just been made?

Their painless history of years' duration effectively debars any association with such a maldeveloped "sexual" centre, and yet the sequel to their period of normal menstruation, we are told, is dysmenorrhoea. In the course of his address, Dr. Herman again states his well-known objections to the "obstructive" theory of this disease. Nevertheless, in speaking of the normal dilatation of the cervix during menstruation, he adds, "In dysmenorrhoea this natural dilatation is absent, and in consequence the contractions of the uterine body are morbidly violent and painful." Save a mechanical stimulus emanating from the cervix, in what other way can the latter evoke these violent and painful movements from the musculature of the uterine body? Comparison with other viscera affords abundant proof of the fact that such movements of involuntary muscle constantly occur in the presence of some mechanical obstruction.

That "the canal in its undilated, unrelaxed state is quite big enough to let the patient bleed to death through it" may be true of an intermenstrual period, and of that alone; for I am not aware of any observations which have been made as to the patency or otherwise of the cervical canal during the acme of a dysmenorrhoeal spasm, and these alone would be apposite to the question of cervical obstruction. I submit that, during an attack, the lumen of the canal is *temporarily* occluded by spasm of the cervical musculature, and the consequent relative obstruction thereby produced evokes the painful spasms from the uterine body. Disappearance of the pain in a few hours follows upon dispersion of the cervical stenosis, and is accompanied by establishment of the menstrual flow.

Lest the purpose of these remarks be misconstrued, let me hasten to add that I have penned them in no spirit of carping criticism, but with due appreciation of the exact statement and acute reasoning to be found in Dr. Herman's admirable and authoritative address.—I am, etc.,

Dukinfield, May 7th. GERALD RALPHS, M.B.

COAGULATION TIME OF THE BLOOD.

SIR,—In a letter in your last issue, Professor Sabrazès states that I borrowed and altered his method of estimating the coagulation time of the blood.

Until I received a letter from him, two or three months after the publication of my paper, I did not even know that he existed, much less that he had written a paper on, or discovered a method for estimating, the coagulation time of the blood.

My method was suggested to me by independent observation during routine work on the Widal reaction for typhoid, where the samples are received for examination in small glass capillary tubes.—I am, etc.,

Edinburgh, May 8th. J. P. MCGOWAN.

SIR,—I think my deductions from Dr. Addis's figures are correct. As I understand him, he made three observations a day for fifty days = 150 observations. Of these, the shortest time was 8 min. 45 sec., and the longest 11 min. 41 sec. The longer of these times exceeds the shorter by 2 min. 56 sec., which is 33.5 per cent. of 8 min. 45 sec., and 25.1 per cent. of 11 min. 41 sec. I took the percentage on the smaller quantity because I am accustomed to do so, and find it on the whole more convenient; and on this basis it is, I think, correct to say that there is a difference of 33 per cent. among 150 trials. The variations in each case of his subsequent experiments are very much less than this, and are, in comparison, remarkably uniform.

I have found that the blood last drawn frequently, but by no means constantly, coagulates first. Dr. Addis finds that it constantly does so; and as a method which gives constant results is, prima facie, more accurate than one whose results are inconstant, it would seem that his method is to be preferred to mine. On the other hand, I have found in a very large number of observations that the clotting time shortly after a meal is constantly less

[1] *Quarterly Journal of Microscopical Science*, January, 1909.

than the clotting time shortly before a meal, while Dr. Addis has constantly found no difference in this respect. The difference may be due to a difference in the composition of the meals. It is clear that the clotting time is extremely sensitive to disturbance, and very minute alterations in the conditions in which the blood is placed have a very sensible influence upon the rapidity of coagulation.—I am, etc.,

London, May 7th. CHAS. MERCIER.

TSETSE FLY AND GAME.

SIR,—The intimate association of tsetse fly with buffalo has, as your readers are no doubt aware, been much emphasized recently by Mr. Selous; and I now desire to bring to notice instances of what appear to be an unquestionably close association between tsetse fly and members of the *Suidae*, represented mainly by wart hogs and bush pigs in this country, and widely distributed here as in other parts of Africa.

Some time ago I was informed by one of our medical officers that he had seen *Glossina morsitans* settling on wart hogs he had shot; but I then thought nothing more about the matter. Lately, the resident of an adjoining district, writing on the subject of the distribution of tsetse fly in his neighbourhood, stated that he had observed these flies, which, on the captures being submitted, proved to be *Glossina morsitans*, settle on the carcass of a wart hog literally in hundreds.

I presume that these observations tend, at any rate, to indicate that where there are wild pigs, there tsetse also are present; and further, that the species, *Glossina morsitans*, apparently feeds voraciously on pig's blood.

Last week I received a report from a medical officer stationed at the north end of the lake (Nyassa) in connexion with measures directed against the entry of sleeping sickness into the Protectorate. *Glossina fusca*, a species of tsetse which, it will be remembered, has been shown experimentally to be capable of transmitting *T. gambiense*, had previously been located by two observers at the north end of the lake in a very restricted locality; and Dr. Davey, the medical officer here referred to, proceeded to this spot to ascertain whether the fly was still to be found there. His search proved fruitless, and after travelling about four miles he saw a bush pig, which he bagged. On approaching it he found that what appeared to be tsetse flies had settled on the carcass; but his boy, who carried a fly net, not being with him at the time, he killed two of the flies, and on examination found that they were *Glossina fusca*.

I submit these observations for what they may be worth, and refrain from making any deductions therefrom.—I am, etc.,

H. HEARSEY,
Zomba, March 15th. P.M.O., Nyassaland.

AN APPEAL.

SIR,—We desire to bring under the notice of your readers the case of a registered medical practitioner of many years' standing, and in good repute in this city. Owing to circumstances of a family nature, not in the least degree discreditable to him, and to his indifferent health of late, he is in urgent want of pecuniary help to enable him to maintain his position. We therefore venture to appeal for that assistance to the members of his own profession, who are always willing to help their brother practitioners.

Any of the undersigned will be glad to receive any donations that may be kindly sent in response to this urgent appeal.—We are, etc.,

ANDREW J. HORNE,
President, Royal College of Physicians of Ireland.
JOHN LENTAIGNE,
President, Royal College of Surgeons in Ireland.
JOHN W. MOORE, M.A., M.D., D.Sc., F.R.C.P.I.,
40, Fitzwilliam Square, Dublin.
CHARLES R. CAMERON, Knt.,
51, Pembroke Road, Dublin.

May 11th.

SEWER AIR.

SIR,—I am glad to note that in your annotation on sewer air[1] you mention the work of Dr. David Arthur, which has been somewhat overlooked. My own bacteriological experiments[2] and topographical investigations corroborated Dr. Arthur's theses as to certain sewers or drains which Professor Delépine expressly excludes from the general application of the results of his valuable and laborious investigations.—I am, etc.,

Norwich, May 8th. J. T. C. NASH.

[1] BRITISH MEDICAL JOURNAL, May 8th, 1909, p. 1142.

[2] "Sewer air and its purification, especially from a bacteriological point of view," *Public Health*, 1902.

Universities and Colleges.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The Admission of Women.

THE following memorial has, we are informed, been submitted to the Home Secretary in reference to the proposed new by-law concerning the admission of women:

[COPY.]

SOCIETY OF MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

To the Right Honourable Herbert Gladstone, M.P., etc., Home Secretary.

Sir,

On behalf of this Society we desire to enter an emphatic protest against the mode of admitting women to the Diplomas of this College contemplated by the Council of the College in the By-law (Section XXVI) now submitted for your approval and sanction.

1. We wish to point out that the proposed procedure under the Medical Act of 1876 (39 and 40 Vict., Ch. 41) is totally gratuitous and unnecessary, since it is equally open to the College Council to admit women in the same manner as all previous changes in the constitution of the College have been made, namely, by means of an amending Charter.

2. The effect of admitting women under this Act of 1876 must be to create an inferior order of Fellows and Members who are unable to take any part in the government, management, and proceedings of the College. Although the whole property of the College is vested in the existing Members and they provide a very large proportion of the College income, it is unfortunately at present the case that they have no voice in the government or management of the College. Therefore the women Members under the Act of 1876 would not be in much worse case than their male colleagues are at present; but they will be debarred for all time by the Act from ultimately acquiring the same position as the men. The case of the women Fellows under the Act would be, however, different. In the Fellows of the College is at present vested the whole right of electing and sitting upon the Council; they therefore control the entire "government, management, and proceedings." The women Fellows, if this by-law is sanctioned, will be for ever prevented from sharing in this right.

3. We further submit that the adoption of this Act by the Council is a retrograde step in view of the position which women have attained in the profession since 1876. We believe that women are now admitted for degrees or diplomas by all the qualifying bodies except the older Universities (Oxford and Cambridge), but so far as we can learn none of these bodies have utilized the provisions of this Act nor made any distinction between their male and female graduates or diplomates. On the contrary in all the newer Universities provision has been made in the Charters for equalizing the position of the sexes.

4. It will be within your knowledge that a Royal Commission has been appointed to consider the whole question of University Education in London. The Royal Colleges of Physicians and Surgeons have appointed delegates to confer with delegates from the University of London, with the object of establishing a scheme for conjoint examinations between these three bodies, in order that a University degree may be obtainable by the average London student on the same conditions as at the provincial Universities. A joint representation is to be made on behalf of this scheme to the above-mentioned Royal Commission. The position of women graduates under this scheme if this By-law is sanctioned will be anomalous and unprecedented. It is well known that at London University there are no disabilities on the ground of sex. Therefore as regards one of the bodies co-operating in this scheme and granting a conjoint degree women will be admitted on the same footing as men, but as regards the others they will be placed in an altogether inferior position.

5. At the last Annual General Meeting of Fellows and Members the following resolution was carried *nem. con.*: "That this meeting is of opinion that women when admitted to the Diplomas of the College should have equal rights with men." In par. 1, Section XXVI, it is stated that women will be admitted "on the same terms and conditions as men," but in par. 2 totally different conditions are imposed under the Act of 1876.

6. Last year the Council took a poll of the Fellows and Members on the question whether women should be admitted at all. The result of this poll showed a majority against the proposal. The Council has therefore refused to abide by the result of its own poll. A supplementary poll was at the same time taken by this Society, asking three questions, which the Council

refused to include in their poll. One of these questions was: "If you desire that women should be admitted, do you consider that they should be admitted under Charter, with full Collegiate rights?" To this over 90 per cent. of the members replying did so in the affirmative. We therefore ask you not to sanction this By-law on the grounds:

1. That it is unnecessary.
2. That it places women in an inferior position under an Act not adopted by any other qualifying body.
3. That par. 1 is in flat contradiction to par. 2.
4. That women will be invidiously treated under the scheme for a future London degree; and
5. That the Council have throughout this matter acted directly in the face of the opinion expressed by the Fellows and Members of the College. Should you require any further information, we very repectfully ask you to receive a small deputation from this Society.

Signed on behalf of the Committee of the Society,
W. G. Dickinson,
A. S. Morton,
May 1st, 1909. Hon. Secs.

Proposed By-law.

Section XXVI. *Admission of Women.*—(1) Pursuant to the powers conferred by the Medical Act, 1876, and subject to the provisions therein and hereinafter contained, women may be admitted as Members and Fellows of the College and may obtain Diplomas in Dental Surgery on the same terms and conditions as men; and so far as it is necessary to give effect to this By-law, words in the By-laws and Regulations of the College which import the masculine gender shall also import the feminine gender, and all proper alterations shall be made in the form of the Letters Testimonial, Diplomas, Certificates, and Licences granted by the College. (2) Women shall not be eligible as members of the Council and shall not vote at or take any part in any election of a member or members of the Council, or attend any meeting of Fellows or of Fellows and Members (except meetings convened for the delivery of Lectures or Orations), or otherwise take any part in the government, management, or proceedings of the College. (3) Women shall not be eligible as members of the Court of Examiners or for any Examinership to which the Council appoint.

UNIVERSITY OF LONDON.

King's College.

Advanced Lectures on Physiology.

The following two courses of special lectures will be delivered in the Physiological Laboratory, King's College, London, during the present term:

1. A course of eight lectures on the Senses of Hearing, Taste, and Smell, by Professor C. S. Myers, M.A., M.D., on Fridays (May 7th to June 25th), at 4.30 p.m.
2. A course of four lectures, with experimental demonstrations, on the Secretion of Urine, by Professor T. G. Brodie, M.D., F.R.S., on Mondays (June 7th to 28th), at 4.30.

These courses are free to all internal students of the University of London, and to all medical practitioners on presentation of their cards.

UNIVERSITY OF LIVERPOOL.

Installation of the New Chancellor: Honorary Degrees.

On Saturday, May 8th, the Earl of Derby was installed as Chancellor of the University of Liverpool, and a number of honorary degrees were conferred upon distinguished persons. St. George's Hall, in which the ceremony was held, was crowded. The handsome, massive mace presented to the university by Dr. Richard Caton, was used for the first time on this occasion.

The Earl of Derby, who succeeds his father in the office of Chancellor, was introduced by the Vice-Chancellor, who conferred upon him the degree of Doctor of Laws.

The new Chancellor expressed his sincere anxiety to follow the traditions of his house by taking part in the public life of the county.

Honorary degrees were then conferred as follows:

Doctor of Laws:
The Right Honourable Arthur James Balfour.
Admiral Lord Charles Beresford.
The Right Honourable Augustine Birrell.
The Right Honourable Sir John Tomlinson Brunner.
Richard Caton.
The Right Honourable the Earl of Crewe.
Robert Gladstone.
Sir Donald MacAlister.
Guglielmo Marconi.
Field Marshal the Right Honourable Earl Roberts.
Paul Vinogradoff.

Doctor of Letters:
Edward Meyer.

Doctor of Science:
Francis Darwin.
John Lancelot Todd.

Doctor of Engineering:
The Honourable Charles Algernon Parsons.

Master of Arts:
William Fergusson Irvine.

Professor MacCunn, in presenting Dr. Caton, introduced him as one to whom the university owed a far deeper debt than it could ever hope to repay. Eminent and honoured in his profession, his name would be enduringly associated with the rise and progress of the Medical School of Liverpool, with the arduous labours of the Chair of Physiology, with the philanthropic work of the Royal Infirmary, and with the enterprise of the Liverpool School of Tropical Medicine. To none more than to him did the university owe its translation from dream to conception, and from conception to accomplished fact. He had also carried the instincts and methods of the man of science into the School of Archaeology, and the public spirit of the citizen into the humane and imperious problems of public health and the housing of the poor. Nor, with the memorable tenure of the Lord Mayoralty of the city fresh in their minds, were they likely to forget that in honouring him they were rendering what was due to a citizen in whom lifelong academic ties, sympathies, and services had been united with all that was unselfish, strenuous, and honourable in the traditions of our municipal life. The students, who greeted the honorary graduates with songs composed for the occasion and accompanied by the great organ, received Dr. Caton with the following lines:

He's a dear kind doctor,
As kind as ever could be;
He's a dear kind doctor,
For city and 'Varsitee.
If you went to Caton,
And tinkled the town hall bell,
The moment he'd take your pulse,
You'd always feel quite well.

In presenting Sir Donald MacAlister, Professor MacCunn said that he was eagerly claimed by Liverpool as one of their most distinguished sons, since it was the privilege of one of her great schools to witness and to hasten the dawn of those commanding and versatile intellectual powers which had won such signal and widespread recognition throughout the length and breadth of the academic and scientific worlds. The University of Liverpool was particularly delighted to honour the distinguished Principal and Vice-Chancellor of the University of Glasgow, which was thrice fortunate in having called to its service the varied knowledge and experience which Sir Donald MacAlister possessed.

In presenting Mr. Francis Darwin, Professor Harvey Gibson described him as one of the foremost authorities in botany, a pioneer in experimental physiology, and the author of a model biography of his great father.

Professor Ronald Ross, in presenting Dr. J. L. Todd for the honorary degree of Doctor of Science, spoke of his distinguished and arduous labours in connexion with sleeping sickness. In 1902 Dr. Todd was recommended to the School of Tropical Medicine by Professor Osler and Professor Adami, and became assistant lecturer on tropical medicine, and afterwards director of the laboratories at Runcorn. Practically at his own expense he furnished the experimental research laboratory of the school. He especially distinguished himself by devoted research in Africa and in Liverpool with regard to sleeping sickness and spirillum fever. The gospel of the prevention of sleeping sickness by organized methods, which he constantly preached, had been accepted by the British Colonial authorities and by the Belgian officials on the Congo. He was engaged with the late Dr. James Everett Dutton, who fell a martyr to work on the Congo expedition of 1903 4-5 on sleeping sickness. On that occasion, working independently, they made discoveries which proved the discoveries in British East Africa in connexion with the so-called tick fever made by Dr. Ross and Dr. Milne some time before. Largely owing to the work of Dr. Todd and that of his collaborators, the Liverpool School had received an increased grant from the British Government. It was with great reluctance that the Liverpool School recently parted with Dr. Todd, but he felt that after six years' absence from his native land of Canada he must accept the post of associate professor in protozoology in McGill University—his own university—that had been offered to him.

EXTRAMURAL SCHOOL OF MEDICINE, EDINBURGH.

Dr. John Keay, Medical Superintendent, Bangour Village Asylum, has been appointed jointly with Sir John Batty Tuke, Lecturer on Mental Diseases at the Extramural School of Medicine, Edinburgh.

CONJOINT BOARD IN IRELAND.

The following candidates have been approved at the examination indicated:

Third Professional.—C. E. Drennan, M. Drummond, R. A. W. Ford, G. J. Fraser, J. Gormley, P. Grace, F. J. Graham, L. A. Moran, H. H. Montgomery, J. McMullin, T. B. Newman, R. O'Connor, M. A. O'Callaghan, W. Rahily, A. A. Russo, H. C. Smyth, T. M. Thomson, F. W. Warren, R. H. Weir.

Medico-Ethical.

The advice given in this column for the assistance of members is based on medico-ethical principles generally recognized by the profession, but must not be taken as representing direct findings of the Central Ethical Committee.

CARDS TO PATIENTS.

W. F. C. W.—There is no objection to information as to a branch surgery being given to patients, but there is always a danger that cards may be handed about and will then be regarded as advertisements.

Medico-Legal.

CHARY JOHN wishes to know the best test for a case of feigned deafness and blindness on one side following a railway accident.

A DEATH FROM CHLORODYNE.

AT an inquest held recently by the Coroner for the City of London, the jury brought in a verdict of accidental death from an overdose of chlorodyne. The case had been adjourned in order that an analysis of the viscera and of the stomach contents might be made, since one medical witness held that death was due to heart failure accelerated by alcoholism; while the divisional surgeon of police, Dr. Kearney, detecting the odour of chlorodyne, believed that death was due to this drug, as proved to be the case. The analysis was carried out by Dr. Womack of St. Bartholomew's Hospital, who said that the deceased appeared to have taken about ½ oz. of chlorodyne. Such an amount would contain 1 gr. of morphine, in addition to Indian hemp, treacle, extract of liquorice, and prussic acid. In response to the coroner's inquiries, it was pointed out that purchasers of chlorodyne were not obliged to sign the Poisons Register, because it did not contain quite 0.1 per cent. of prussic acid, or as much as 1 per cent. of morphine. The Coroner said he thought that the law ought to be altered, vendors of secret cures and proprietary remedies being obliged to state the contents on the bottles and wrappers used.

WORKMAN'S COMPENSATION CASES.

Serious and Permanent Injury.

A CASE (Shenton *v.* Stafford Coal and Iron Co.), decided by Judge Ruegg at Stoke on April 15th, is important as showing that it may sometimes devolve on a medical referee to decide whether an injury is "serious and permanent." In his judgement, the judge said that the applicant was a miner, and the defence set up was that he had been guilty of serious and wilful misconduct, and that that was the cause of the injury. After hearing the case, he came to the conclusion that the applicant had been guilty of serious and wilful misconduct, and that he came under the section of the Act which said that no workman who brought about his injury by his own serious and wilful misconduct could recover compensation, except in two cases. One exception was that where death resulted, and where compensation was claimed by the dependents, and the other exception was where the injury resulted in serious and permanent disablement to the workman himself. In the course of the case, he expressed the opinion that he was obliged to find on the facts that the workman was guilty of serious and wilful misconduct. Then the question arose, Was the injury of a serious and permanent character? There was a great conflict of medical opinion, and in the end it was decided that the applicant should be seen and examined carefully by an entirely independent medical man, who was one of the medical referees of the court. This had been done, and the medical referee reported to him that there was no doubt, in his opinion, that the injury was of a serious and permanent character. Consequently, the man was entitled to compensation. Workmen, particularly those engaged in mines, should know the great risk they ran of being deprived of their compensation altogether if they deliberately broke the rules of the mine, or if—as was in his opinion equally bad—knowing it was their duty to make themselves acquainted with the rules, they deliberately abstained, as in this case, from making themselves acquainted with them. It was only under very rare circumstances, when these facts existed, that workmen could recover compensation. Fortunately, in one sense, and unfortunately in another—because the plaintiff's injury had been declared to be both serious and permanent—the Act of Parliament, very liberally in the interests of the workman, declared that even where he had brought the injury upon himself by his own misconduct he should still be entitled to receive compensation. The judge said that he did not understand the Act of Parliament to mean that it was necessary for the injury to be lifelong. It must be an injury the effects of which would not be temporary, and it was an injury which might perchance last the man's life.

A Claim in Respect of Ringworm.

In the case of Millington *v* Woodward, which was heard at the St. Helens County Court on April 22nd, the applicant had been employed as a blacksmith's improver. He was first employed in August, 1908. At the end of October he was sent to attend a horse which was suffering from ringworm, and in consequence he caught the disease. Judge Shand, after hearing the evidence of the applicant, said he could not see how it could be contended that Millington did not contract the disease from the horse. Dr. Officer said that the lad had suffered from most virulent ringworm. Dr. Jackson, who had examined applicant for the insurance company, said that on January 25th the lad was perfectly recovered, but there was no doubt that he had had ringworm. The Judge gave an award in favour of Millington for 8s. a week from November 17th up to date.

Loss of a Hand.

In a case which was heard at the Bradford County Court on May 4th the applicant had been at work in the respondent's quarry. When loading a wagon a small piece of shale or stone flew out and caused a cut on the thumb. Blood-poisoning in the right hand and arm followed, necessitating the amputation of the hand. The employers resisted the claim on the ground that there was nothing to connect the injury with the accident. Judge Graham, in giving judgement, said that he had thought during the argument that the poison might have been introduced into the system by reason of the applicant bandaging the thumb with a dirty rag. Dr. Horrocks, however, a medical man of great experience, had expressed the opinion that the poison entered the system through the wound. His Honour therefore held that the applicant had made out a *prima facie* case. The applicant would have 8s. 8d. a week.

PAYMENT TO MEDICAL WITNESSES IN THE CORONER'S COURT.

R. M. G., a member, makes inquiries into this matter, and many a time and oft we have replied to similar questions, especially those which related to the fees payable to medical officers of hospitals and workhouses, in which our correspondent is especially interested.

*** We would refer our correspondent to the BRITISH MEDICAL JOURNAL of September 14th, 1907, in which we published a full report on the subject, quoting various opinions and interpretations that had been expressed by various local authorities, and the results. The whole question turns upon the reading of Subsection 2 of Section 22 of the Coroners Act, 1887, with which all coroners are familiar. This section is somewhat ambiguous. We believe the coroners themselves are quite ready and willing to pay the medical fees if they were assured they would be reimbursed by the local authorities. It is quite open to "R. M. G." to sue the coroner in the county court, but we should advise him first to consult a solicitor. At the present time a Departmental Committee of the Home Office on Coroners Law is sitting, and a subcommittee of the Medico-Political Committee of the British Medical Association is preparing evidence for submission to it. A bill to amend the Coroners Act prepared for the Association some years ago contained a clause providing that every legally qualified medical practitioner who attended a coroner's inquest in obedience to a summons from the coroner should be entitled to receive remuneration at the rate of 1 guinea for every day such practitioner attended to give evidence.

Public Health
AND
POOR LAW MEDICAL SERVICES.

PUBLIC VACCINATORS AND POOR LAW DISTRICT MEDICAL OFFICERS.

ON January 18th, 1909, the following letter was addressed to the President of the Local Government Board on behalf of the Association of Public Vaccinators of England and Wales:

1, Mitre Court Buildings,
Temple, E.C.

Sir,—

The Council of this Association has had before it on many occasions during the past 12 months complaints from Public Vaccinators, who are also District Medical Officers, that they are compelled to do the work of District Medical Officers for inadequate remuneration, the plea of the guardians being that such inadequate remuneration is amply made up by the fees received from Vaccination.

So far has this been carried that in several instances where a Public Vaccinator has resigned his District Medical Officership he has been immediately deprived of his Vaccination Appointment.

This appears to the Members of the Council most inequitable and they would like to lay their views upon the subject before you personally and with that object I am requested to write and ask you to favour them with an appointment when a small deputation could wait upon you for that purpose.

The Deputation would also like to be permitted to mention the question of fixity of tenure, as, in the opinion of the Council, that question is closely connected with the matter above referred to.

The Council will be meeting again on the 29th inst., and I should esteem it a favour if you could let me have a reply to this letter before that date.

I am, Sir,
Your obedient Servant,
(Signed) CHAS. GREENWOOD,
Organizing Secretary.

This letter was acknowledged on January 19th, and on January 28th the President of the Local Government Board asked to be furnished with a short statement in writing of the points upon which the Association of Public Vaccinators desired an interview. To this communication the following reply was sent:

March 31st, 1909.

To the Secretary of the
Local Government Board.

Sir,—

Referring to the Association's letter of January 18th last, and to your answer thereto of the 28th ultimo, and in compliance with the President's request, we now beg to submit the following short statement of the points upon which the Association are seeking an interview:

1. The complaints of public vaccinators who are also district medical officers are as follows:

(*a*) That their work as district medical officers is inadequately paid for, because the guardians contend that a part of the remuneration they receive as public vaccinators must be regarded as payment for their work as district medical officers, and reduce their remuneration accordingly.

If this contention is correct, their contracts as public vaccinators are incorrect and misleading, as they are performing their duties as public vaccinators for remuneration below the statutory minimum, and consequently are at a disadvantage as compared with other public vaccinators who are not also district medical officers.

For Example.—(1) The Aston Board of Guardians recently proposed dividing their union into two districts and appointing a whole-time official in each, but to pay them, in respect of their district medical officers' duties, on a different basis. In one district, with a population of 91,000, the salary as district medical officer was to be £200, whilst in the other, with a population of 114,000, it was to be only £100, and this despite the fact that when this latter district was originally formed your board insisted upon a minimum of £150.

The reason given by the guardians for this difference in salary was that the vaccination was more valuable in the latter district than in the former.

(2) The Newhaven Board of Guardians, when applied to by one of the public vaccinators for increased vaccination fees, refused to grant same, because this public vaccinator, as district medical officer, was considered to be fairly well remunerated.

These two examples of the way in which the remuneration of district medical officers is set off against their remuneration as public vaccinators and vice versa are only samples of what is going on in many unions.

(*b*) That in cases where public vaccinators who are also district medical officers resign the latter appointments because of the inadequacy of their remuneration therefor, their contracts as public vaccinators are terminated by notice.

Examples.—1. The Pontefract Board of Guardians peremptorily dismissed the public vaccinators for the Castleford District because they resigned their positions as district medical officers owing to the inadequacy of the salary, which worked out at seven farthings per attendance (which included medicine). The board accepted the resignations, although they admitted that the work was well done, and, despite the fact that when the question of the vaccination fees was being discussed the board decided the two appointments were entirely separate, and the vaccination fees were reduced, and agreed upon, the vaccination contracts were forthwith terminated solely because the public vaccinators had felt compelled to resign the district medical officerships.

2. The Poole Board of Guardians in the same manner and for the same reason (namely, resignation of the district medical officership) put an end to the vaccination contract with Dr. M. Eden Paul.

3. Similarly, the Driffield Board of Guardians peremptorily dismissed Dr. A. T. Brand from his post as public vaccinator.

2. As to the question of fixity of tenure:

(*a*) The Departmental Committee of 1904 appointed to inquire into the subject of vaccination expenses—after pointing out (par. 57) that the position of public vaccinators was a serious one in view of the fact that, although they may have given up the greater part or even the whole of their private practices in order to devote their time to public vaccination, they are merely contractors and liable to have their contracts determined at twenty-eight days' notice—suggested (par. 95) that the law should be amended so that every public vaccinator might become an "officer," "and . . . have fixity of tenure," and "that public vaccinators generally . . . would regard such a change as some compensation for the reduction which we propose should be made in their fees."

(*b*) The Committee further suggested (par. 96) that when a public vaccinator was under contract for vaccination at the time when any new Act or Order affecting fees came into force he should have the option of remaining a contractor instead of becoming an "officer," in which case no reduction below the minimum fee payable under the Order of 1898 should be made.

Despite the reduction in fees by the board's order of 1907, the suggestions of the Departmental Committee that fixity of tenure should be given as some compensation for such reduction has not hitherto been acted upon.

We are, moreover, requested to inform you that there still exists a strong feeling of disappointment and dissatisfaction in regard to the amount fixed as a minimum fee for domiciliary vaccination, which fee, in view of the obligations entailed and the responsibilities incurred, is considered under any circumstance at present existing wholly inadequate.

Upon these points, therefore, the Council of the Association are anxious to meet the President and discuss with him more in detail the position of public vaccinators.

We are, sir,

Your obedient servants,

(Signed) ARTHUR DRURY, M.B., C.M.,
President.
CHAS. GREENWOOD,
Organizing Secretary.

To this the following reply was received:

Local Government Board,
Whitehall, S.W.,
May 3rd, 1909.

Sir,—

I am directed by the Local Government Board to advert to your letter of the 31st March last, containing a statement of the points upon which the Association of Public Vaccinators of England and Wales desire an interview with the President.

The points referred to in that statement have been brought to the President's notice, and have received his consideration, and under the circumstances it does not appear to him necessary to trouble the proposed deputation to attend.

With regard to the combination of the offices of district medical officer and public vaccinator, the board recognize that in ordinary circumstances where these offices are held together the remuneration for each office should be proportioned to the duties of the office. But they think that where an officer is required to devote his whole time to public appointments the guardians may properly have regard to the total remuneration which will accrue to him in respect of those appointments. The board have no power under the existing law to prevent the guardians from giving notice to a public vaccinator to determine his contract where he has resigned office as district medical officer, nor are they empowered to give public vaccinators fixity of tenure.

I am, Sir,

Your obedient servant,

(Signed) JOHN LITHIBY,
Assistant Secretary.

THE DIPLOMA IN PUBLIC HEALTH.

At a meeting of the Metropolitan Asylums Board on May 8th the Hospitals Committee reported having considered a letter from Dr. H. Kenwood, Professor of Hygiene at University College, London, in which he asked, on behalf of members of his course for the diploma in public health, whether the existing conditions under which the candidates are "signed up for the three months' attendance upon a fever hospital which is required by the regulations for the diploma" can be modified. The medical officer for the general purposes (Dr. Cuff) submitted a full report on the subject, giving in detail the steps which led to the adoption of the present regulations, and pointing out that the present scheme does not accommodate itself to the circumstances of the large majority of the candidates for the diploma in public health. The existing arrangements require candidates who wish to study administration in the board's hospitals to reside therein. The committee had gone into the matter very carefully, and while of opinion that the present arrangements involving residence should be retained unaltered, thought that steps should be taken as suggested by Dr. Cuff to supplement the facilities now afforded by instituting at two of the board's hospitals, as an experiment, classes at which candidates for the diploma might receive instruction in administration without being compelled to enter into residence. They recommended:

That, subject to the sanction of the Local Government Board, the existing facilities for the study of hospital administration afforded to candidates for the diploma in public health is supplemented by the institution at two of the hospitals, as an experiment, of classes for the instruction of candidates in hospital administration without requiring them to enter into residence, and that the Local Government Board be furnished with a copy of the report on the subject by the medical officer for the general purposes (Dr. Cuff).

This was agreed to without comment.

CHARGES AT ISOLATION HOSPITALS.

J. L. M.—It is becoming more and more the custom for sanitary authorities to make no charge for patients admitted into isolation hospitals. There is nothing to prevent a charge being made.

EDUCATION AUTHORITIES AND MEDICAL TREATMENT.

F. T. T.—The Education (Administrative Provisions) Act, 1907, Clause 13 (1) (*b*), gives a local education authority "power to make such arrangements as may be sanctioned by the Board of Education for attending to the health and physical condition of the children educated in public elementary schools." Unless the local education authority has obtained the sanction

of the Board of Education to some special regulation giving the power to enforce treatment, which is exceedingly unlikely, and which would be open to challenge, it would not have a legal right to have a child's hair clipped on one side. It can, however, indirectly insist on treatment being provided by excluding the child and prosecuting the parents for its non-attendance should they fail to have the child properly treated.

Obituary.

CHARLES MACKENZIE MACRAE, M.D.,

STORNOWAY.

A VERY old, if not the oldest, member of the medical profession in the north of Scotland, Dr. C. M. Macrae, of Barvas Lodge, Stornoway, died, at the ripe age of 91, on May 4th. He retired from practice three years ago on account of growing infirmity, and resigned his public appointments at the same time; one of them—that of medical officer of health for Stornoway—he had held for over sixty years.

Dr. Macrae was an M.D. of Edinburgh University, taking that degree as well as the L.R.C.S.Ed. in 1848. He laboured all his professional life amongst the Lewis islanders, by whom he was highly respected. For a long period of years he and his colleague (the late Dr. Roderick Millar) had the entire charge of 30,000 inhabitants of the Lewis, scattered over an area of 650 square miles.

Dr. Macrae took a deep interest in everything that concerned the welfare of the Lewis people. He was an Honorary Sheriff-substitute, a J.P., and for many years Chairman of the Stornoway School Board. In 1895, on completion of fifty years' practice in the island, he was presented with an illuminated address and purse containing two hundred sovereigns, along with a silver tray and a tea and coffee service for Mrs. Macrae. He was the author of an article on Lewis in the *Encyclopaedia Britannica*, and had written also on the medical topography of the Outer Hebrides.

HERBERT MURRAY RAMSAY, F.R.C.S.EDIN.

IT is with great regret that we record the death of Mr. H. M. Ramsay, which occurred on April 29th, at the Cotswold Sanatorium, near Painswick, at the early age of 45. The immediate cause of death was tuberculosis following on an attack of infective pharyngitis contracted in the early autumn of last year.

Mr. Ramsay was the son of the late Captain Douglas Ramsay, R.N., of Aldeburgh, Suffolk. He received his medical education at St. Bartholomew's Hospital, and, after taking the diploma of M.R.C.S.Eng. and L.R.C.P.Edin. in 1885, joined the Army Medical Service, serving with the 1st Battalion Scots Guards from 1888 till 1896, when he retired, and started private practice in Hertford Street, Mayfair. He practised there with great success until incapacitated by the onset of the illness which proved fatal. He was for several years Medical Officer of the Inns of Court Rifle Volunteers, retiring in 1906 with the rank of Surgeon-Major.

Mr. Ramsay was much interested in the welfare of the soldier, and was a prominent member of the Union Jack Club; he was one of the three founders of the Canteen and Mess Co-operative Society, which has for its object the supplying of all soldiers' requirements at the lowest possible price and of the best quality. On the formation of the Territorial Force he was gazetted Lieutenant-Colonel, and put in command of No. 1 General Hospital, but his illness prevented his taking up active duty. The funeral took place at Charlton, near Malmesbury, where he and Mrs. Ramsay were well known, as they were frequent visitors at Charlton Park, and had endeared themselves to the residents of the village and district. The church was completely filled, and among the congregation were many London friends, including several members of the medical profession as well as many villagers who desired to show a last token of respect. The coffin was covered with numerous floral tributes.

WE have to announce the death, on May 2nd, of Dr. DONALD MURRAY, for many years a well-known practitioner in Leith. A native of Stornoway, where he was born sixty years ago, Dr. Murray entered Edinburgh University as an arts student, but subsequently studied medicine and graduated M.B. and C.M. at St. Andrews University. After graduation he settled in Leith, where he very soon built himself a large practice. He was Admiralty Surgeon, and had also medical charge of the troops at Leith Fort.

WE regret to have to announce the death of Dr. D. S. MACDONALD, who for the past nine years had been practising in the island of Jura. His death was indirectly due to an attack of influenza contracted some months ago. A graduate of Aberdeen University, Dr. MacDonald, after making a voyage to Labrador, commenced practice in Inverness, where he remained a few years; from there he went to Sleat, acting as Parochial Medical Officer with much acceptance. Finally, he settled in Jura, where by his devotion to duty he gained the esteem and regard of the inhabitants of that lonely island. Practitioners on the mainland have little idea of the privations of their brethren who, under very trying circumstances, have to carry on their work, in many cases far from any of their brethren, for whose advice and help they would be only too grateful. Dr. MacDonald's practice was in one of these isolated islands, and he will be much missed by the inhabitants, in whose welfare he at all times took a kindly interest. Dr. MacDonald was a widower, leaving three sons who are resident in Canada and two daughters to mourn his loss.

A considerable circle of younger Edinburgh men will hear with sorrow of the removal by death of Dr. DAVID IONE ROBERTS, a gifted and attractive personality. Born in Wales thirty-one years ago, young Roberts studied medicine in Edinburgh with conspicuous success. He was a favourite both with teachers and fellow students. He possessed qualities which made him one of the most companionable of men; he was an accomplished musician, and had a cultured voice of large range; he was an artist to his finger-tips. Soon after graduation evidences of chest weakness showed themselves. Dr. Roberts made a noble stand against the enemy and, devoting himself to work in the field of tuberculosis, took office as medical superintendent in two sanatoriums successively. Only last year, although his strength was not what his friends would have desired, he succeeded in taking the D.P.H., with a view to promotion in public health work. A valuable post was almost within his grasp, when considerations of health prevented his pressing the advantage. Unfortunately, a serious aggravation of his illness occurred this spring, and after a last brave struggle he had to give in. He passed away in Edinburgh on May 4th. He leaves, with many fond memories which will linger long, a record of a beautiful and blameless life.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Professor Haug, Director of the Aural Clinic of the University of Munich, aged 49; Professor Ercole Galvagni, Director of the Medical Clinic at Modena, and author of various writings on clinical subjects, aged 73; Dr. Moissenet, formerly physician to the Paris hospitals; Dr. Richard Fleischer, formerly Professor of the History of Medicine in the University of Erlangen, aged 61; Dr. P. de Almeida Magalhaes, Professor of Medical Pathology at Rio de Janeiro; Dr. Laqueur, Emeritus Professor of Ophthalmology in the University of Strassburg, aged 69; and Dr. Frank W. Draper, Professor of Legal Medicine in the Harvard Medical School, Physician to the Boston City Hospital, and author of many papers on medico-legal subjects, aged 66.

UNDER the will of the late Mr. John Smith, a merchant, of Dundee, the Royal Infirmary in that city receives a bequest of £2,000, while the Royal Victoria Hospital for Incurables in Dundee benefits to the extent of £1,000, and the Gerard Cottage Hospital at Monifieth, where the deceased resided, receives £500.

Letters, Notes, and Answers.

BRITISH MEDICAL ASSOCIATION AND BRITISH MEDICAL JOURNAL.

THE offices of the British Medical Association and of the BRITISH MEDICAL JOURNAL are at 429, Strand, London.

COMMUNICATIONS respecting Editorial matters should be addressed to the Editor, 429, Strand, London, W.C.; those concerning business matters, advertisements, non-delivery of the JOURNAL, etc., should be addressed to the Office, 429, Strand, London, W.C.

TELEGRAPHIC ADDRESS.—The telegraphic address of the EDITOR of the BRITISH MEDICAL JOURNAL is *Aitiology, London*. The telegraphic address of the BRITISH MEDICAL JOURNAL is *Articulate, London*.

TELEPHONE (National):—
2631, Gerrard, EDITOR, BRITISH MEDICAL JOURNAL.
2630, Gerrard, BRITISH MEDICAL ASSOCIATION.
2634, Gerrard, MEDICAL SECRETARY.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

MANUSCRIPTS FORWARDED TO THE OFFICE OF THIS JOURNAL CANNOT UNDER ANY CIRCUMSTANCES BE RETURNED.

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL, and not at his private house.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

OMEGA asks for a remedy to remove brown spots on the skin produced by bromides.

GADUS asks for information regarding the use of formalin or any other preservative in keeping fish fresh for market.

BAFFLED asks for suggestions as to the treatment of pruritus pudendi, not due to sugar, nor to uterine trouble. Solution of silver nitrate, of tar, and of lead have been tried; also calomel ointment, carbolic lotion, borax and soda lotion, and cocaine ointment. All have given temporary relief, but none has been of any permanent benefit. Is radium useful; and, if so, how is it applied?

CONTRACTS NOT TO PRACTISE: HOUSE-SURGEONS.

DR. J. F. HODGSON (Honorary Secretary, Halifax Division, British Medical Association, Trafalgar House, Halifax) writes: Some provincial hospitals require their house-surgeons to sign an agreement restricting them from practising within a certain distance from the hospital and for a certain term of years from the date of appointment. Can any of your readers supply me with the names of such hospitals, together with the limits of space and of time insisted upon?

ANSWERS.

R.M.G.—The patient was apparently suffering from poisoning by carbon monoxide, which is given off when coke is burned in a cast-iron stove if the latter becomes red hot.

J. J. H.—The Secretary of the National League for Physical Educational Improvement, 11, Southampton Row, W.C., informs us that a list of the institutions where training courses are held for the examinations of the Sanitary Inspectors' Examining Board can be obtained from the Secretary of the Examining Board, Adelaide Buildings, London Bridge, S.E. Particulars as to the examination of the Royal Sanitary Institute and the opportunities of training for it may be obtained from the Secretary of the Institute, Parkes Museum, Margaret Street, W. Particulars as to examinations, certificates, etc., are given in *How to become a Lady Sanitary Inspector*, by a Lady Inspector (30 pp., London Scientific Press, 28 and 29, Southampton Street, Strand, W.C. 1908. 6d. net); and also *Women as Inspectors* (20 pp., Central Bureau for the Employment of Women, 9, Southampton Street, High Holborn, W.C. 1907. 3d.).

ACETYLENE IN PRIVATE HOUSES.

T. J. D.—We are not aware of any harmful effects upon persons living in houses lit by acetylene. Unlike carbon monoxide, acetylene does not enter into chemical combination with the haemoglobin of the blood. There is therefore no danger so long as there is a fair amount of ordinary atmospheric air. Acetylene has to be present in fairly large percentages to do harm, and even then, in animals which have been rendered unconscious by breathing acetylene, placing the animal for a few minutes in the open air is usually sufficient to bring about recovery. Acetylene is an explosive gas when present in atmospheric air to the extent of 5 per cent.

BORAX AND BOILED MILK.

FLEET SURGEON.—The best simple test for boric acid in milk is as follows:

Make about an ounce of the milk strongly alkaline with lime water, evaporate to dryness, and ignite the residue; add half an ounce of water to the ash and sufficient hydrochloric acid to give an acid reaction, and then a further 15 minims of the strong acid; dip a piece of turmeric paper in the liquid and allow it to dry. If boric acid or borax was present in the milk, the paper will have a characteristic red colour when dry. Ammonia changes the colour to a dark blue-green, the red being restored on again acidifying with hydrochloric acid. The same test may be employed for butter by mixing about a quarter of an ounce with lime water, evaporating and igniting.

Boiled milk may be detected by the following test:

Add to half an ounce of the milk two drops of solution of hydrogen peroxide, shake, and then add two drops of a 3 per cent. aqueous solution of paraphenylenediamine hydrochloride. With raw milk a blue colour appears at once, or in a few minutes; with boiled milk no blue colour appears even on long standing.

LADY DISPENSERS.

W. S. P.—(1) There are two ways of becoming a qualified dispenser: (*a*) To take the Assistant's Certificate of the Society of Apothecaries; (*b*) to take the Minor Certificate of the Pharmaceutical Society. Candidates for the former pass two examinations, the one a practical test of their ability to compound and dispense medicines; and the other an oral examination in materia medica, chemistry, pharmacy, and the translation of prescriptions. They must produce a certificate signed either by a registered medical practitioner or a fully-qualified chemist, or by an assistant of the Apothecaries Society holding a public appointment, that they have received instruction in practical pharmacy for six months. Examinations are held towards the end of the first month of each quarter throughout the year. The fee is five guineas. A syllabus can be obtained on application to the Clerk of the Apothecaries Society, Blackfriars, E.C. Candidates for the Minor Certificate of the Pharmaceutical Society have to pass a preliminary examination in general education, to be apprenticed for three years, and attend regular courses of instruction in botany, materia medica, chemistry, and other subjects, and finally to pass an examination therein. Including examination fees, tuition fees, and the cost of living, the expense of this qualification must be put down as not less than £100.

(2) Holders of Certificate (*a*) are eligible for appointment at any of the institutions maintained by Poor Law authorities, including the Metropolitan Asylums Board, and are frequently employed at hospitals and dispensaries, and by medical men who conduct dispensing practices. The holders of Certificate (*b*), the Minor Certificate, are eligible for the same appointments, and also have the advantage of being entitled to registration as chemists and druggists, and of being able to open shops. Hence the prospects of those who hold Certificate (*b*) would appear to be better than those of the holders of Certificate (*a*), since the outlook before them is wider. Among the holders of these certificates are a great many women, and it is not certain that the supply does not exceed the demand. Nevertheless, women seem to be adopting pharmacy with increasing frequency, and last year the winner of the Pereira Medal at the School of Pharmacy was a woman student. There is also an Association of Women Pharmacists (Gordon Hall, Gordon Square, W.C.), which would doubtless be ready to supply further details with regard to this occupation.

LETTERS, NOTES, ETC.

"THE HEIGHT OF CREDULITY."

W. H. B. writes with reference to the paragraph under this heading which appeared in the JOURNAL on April 24th: Will you kindly allow me to suggest the reason why the recipients of the "cork soles" also received "a bottle of hair lotion?" No doubt they would be very wild, and the "lotion" would point out to them the advisability of "keeping their hair on."

*** *Haare lassen* (to shed hair) may be used figuratively as equivalent to "being fleeced." This seems to supply an explanation of the hair lotion.

ERRATUM.

IN line 16 of the leading article on Antityphoid Inoculation (BRITISH MEDICAL JOURNAL, May 8th, p. 1140), for 0.8502, read 0.4802.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Eight lines and under	0	4	0
Each additional line	0	0	6
A whole column	2	13	4
A page	8	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication: and, if not paid for at the time, should be accompanied by a reference.

N.B.—It is against the rules of the Post Office to receive letters at *Postes Restantes* addressed either in initials or numbers.